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# TIMES

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APRIL 1994

1994 ANNUAL

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THE ACTIVE DIVER'S MAGAZINE

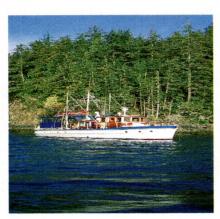


MARCH/APRIL

1994



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Cover shot: Kathy Viola swims through a rainbow tunnel of coral and fish in Beqa (pronounced behn-ga) lagoon located south of Viti Levu in the Fiji Islands. Photo by Franklin Viola.

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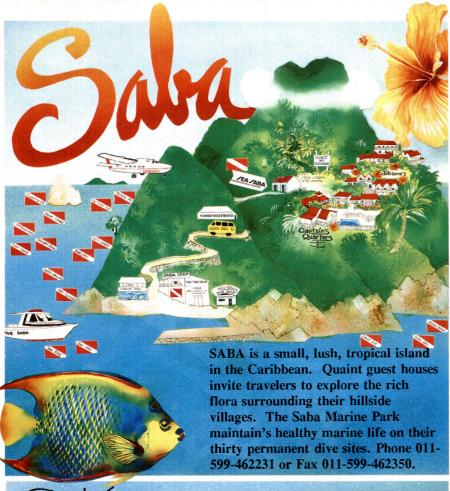
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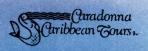
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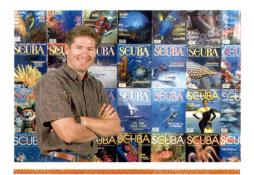
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The opinions stated in the articles of *Scuba Times* are those of the writers and do not necessarily reflect the opinions of the management of *Scuba Times*.



#### **EDITOR'S LINE**



November 3, 1993 - Rocas Gordon, Galapagos, Ecuador, aboard the Galapagos Aggressor:

I'm in 70 feet of 65°F water and wedged between two barnacle encrusted rocks, staring up at the dreamy silhouettes of 20 hammerhead sharks as they pass over my head. The current is ripping from behind me (the sharks always swim upstream), threatening to suck me out of my rocky alcove. I tighten my grip on a couple of huge, gnarly

barnacles (good gloves!) and wait. At just the right moment I fire off two photos and exhale, knowing full well my bubbles will scare the skittish sharks away. Sure enough, they see the bubbles, see me and quickly vanish through the blue curtain. Was it a dream? Certainly. It was a dream fulfilled, to swim with hammerheads.

This and many other experiences have taught me that diving is really built on dreams. We dream of escaping to tropical getaways, swimming with dolphins, taking the perfect photo of an orange-ball anemone, getting a new dive computer, finding treasure on a wreck, exploring the depths of a cave and the list goes on. Even diving itself is dreamlike. It's that feeling of floating weightlessly in semi-silence, encountering creatures that rival the creativity of our subconscious.

One of my dreams has always been to dive the Galapagos Islands so I could play Charles Darwin and Jacques Cousteau all in the same week. I did so aboard the new *Galapagos Aggressor*, an immaculate, new 80-foot live-aboard dive yacht. The ninth vessel in the Aggressor Fleet, this ship oozes style from its polished wood interiors to its gracious Ecuadorian crew. The boat was built in Ecuador and thus handles the rough Galapagos waters well. Its cushy comforts lessen the impact of the chilly waters, strong currents and so-so visibility (50-foot average) of the Galapagos.

In terms of dreams, this magazine is a dream machine as well. It's your ticket to daydreaming—a catalyst to get those dive-dream juices cooking. And in this issue there are many ways to lose yourself. Perhaps you'd like to dive with sharks too. No problemo. Shark expert Marty Snyderman tells us the best places in the world to experience this. How about ice diving? Believe it or not, some people not only do it, but they actually look forward to it. Tom Morrisey tells us why.

We have the customary hot spots, Aruba, Bonaire, Curaçao, Belize and Mauritius, as well as a cold expedition to British Columbia. But, perhaps, the biggest dream weaver is an editorial piece which our art department dubbed "the chart from hell" upon its debut four years ago. It's a listing of every live-aboard dive boat in the world and it has gotten a bit more hellish for them each year. But for you, dear reader, it's a Godsend. That is, if your desire is to take a live-aboard trip. There are over 100 ships covering almost every corner imaginable. It's simple, you find the place, the features and the price that's right for you and take your pick.

For those of you who received our last issue, I'm certain you noticed that it was our 15th Anniversary Issue. That being the case, 1994 is our 15th Anniversary Year. Makes sense to me. So, we're celebrating all year. One way is by creating a very special organization, called Club Scuba Times (see page 82). Club members are entitled to a host of benefits. If you're into diving, you should be in the club.

I'd also like to take this opportunity to welcome our new editor, Gary Nichols. Gary is a former Navy diver and a five-year veteran of Diver's Alert Network (DAN), where he was editor of their magazine, *Alert Diver*, as well as many of the reports and documents DAN published. He brings a new dimension and a lot of experience to our team and we welcome him aboard.

Finally, as we begin a new year, please remember to dive safely and keep those dreams alive.

That's it from here. Enjoy. N









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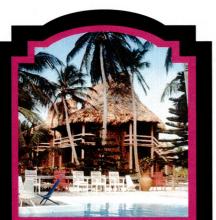


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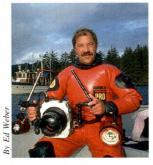


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#### Contributors



Franklin Viola

Undaunted by the brisk winds and frigid water of autumn in British Columbia, STM equipment editor Franklin Viola returned from a trip to Malaysia just long enough to trade his skins for a dry suit and lead a Scuba Times Expedition aboard the Clavella in Queen Charlotte Strait. He likened the rapid transition to the old Norwegian custom of sitting in a sauna and then plunging into an icy lake. The custom probably suits Norwegians, but for a man who once considered Atlanta (his current hometown) to be "up north" it was a shocking experience. Frequent STM contributor Ed Weber, who lives in the neighborhood of the Clavella, couldn't pass up a chance to see how Franklin was handling the cold so he dropped in for a few dives with the group and took a photo that

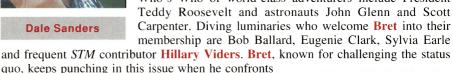
shows Franklin looking like he was born for dry suit diving. See Franklin's story ("Conquering British Columbia," page 30) for the details on what makes B.C. diving worth the effort even for natives of the Deep South.

Doug Perrine worked with Howard Hall recently on the one-hour National Geographic special about Belize, Jewels of the Caribbean Sea, to air April 13 on TBS. Doug, a frequent visitor to Belize, dried off long enough to check out some of the topside sites of this divers' paradise ("The Best Kept Secrets of Belize," page 24). From what he says anyone who goes to Belize and limits their experience to just the underwater scenery is selling the destination short.

It seems like everyone is clamoring to get an assignment to Mauritius these days. After reading Dale Sanders' story ("Eden of the Indian Ocean," page 36) it is easy

to understand why. Iridescent volcanic ash, hindu temples and dive sites with names like the Shark Pit are just a few of the attractions that made Dale take time off from writing his guide to Florida shipwrecks to check it out.

It's appropriate that STM Advanced Diving Journal editor Bret Gilliam, who holds the record for deepest scuba dive on air, has been elected to the same prestigious Explorers Club as Sir Edmund Hillary, who was the first to conquer the highest point on earth-Mount Everest. Bret was inducted with additional honors as a Fellow National in recognition of his published works, many of which have appeared in Scuba Times Magazine. Other members in this Who's Who of world-class adventurers include President Teddy Roosevelt and astronauts John Glenn and Scott Carpenter. Diving luminaries who welcome Bret into their



quo, keeps punching in this issue when he confronts the Ten Commandments of Diving on page 74.

It was all done with mirrors when Georgienne Bradley and Jay Ireland took time out from working on their four books about Costa Rica to trick a shy blennie into being photographed. Read their version of the encounter in "Creature Feature" on page 60. The blennie did not submit his side of the story to STM. He's probably headed for The National Enquirer.

For readers who have mastered the perennial problem of too much gear and never enough space. there's a new challenge: kayak diving. For our

introduction to this seemingly impossible combination sport, we went to the woman who wrote the book, literally, on the subject. Jean Henry developed the first curriculum for kayak diving, including specialty through instructor training. See her article in our Advanced Diving Journal on page 80 with an examination of the whys and hows of this "Wave of the Future."

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**Bret Gilliam** 



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"Red's" airline of choice to the Caribbean is American Airlines.





#### **LETTERS**

#### Gender Bender

I enjoy your magazine as do other women divers I know. However, I was quite upset to see your Christmas ad. It makes an unreasonable and unprofitable assumption with "Scuba Times a gift he'll open again and again." What about the women divers? Don't you want our business? We read, we dive and we have money. I hope you will address this matter.

Martha Stone Richmond Hill, NY

Not only do women read and dive, they also edit and design magazines, and sometimes they even make mistakes. Believe it or not the editor who approved that copy and the art director who approved the design are both women. In fact our STM staff is made up of over 60 percent women.

You weren't the only one to catch our goof. Most embarrassing of all, some of the other gender-sensitive readers who wrote to correct our error were men!

#### Low On Oxygen

The article by Dr. Viders of "Emergency Oxygen" in the October issue was very informative and I know a great help to understanding the technical considerations needed for oxygen administration.

As a Respiratory Therapist with 15 years experience in Emergency Care, I have to disagree with Dr. Viders when it comes to supplementing DAN's Oxygen Kit. She recommends a second demand valve with a positive pressure button.

The American Heart Association guidelines recommend the use of mouth-mask ventilation until an adequate airway can be established. If personnel wish to have an adjunct to mouth-mask ventilation for the potential use by trained personnel I recommend a manual resuscitator to reduce the risk of complications.

Eric E. Parkhill, BSc., RRT Clinical Specialist Respiratory Associates, Gainesville, GA

Viders Responds

My article recommends the most feasible equipment for recreational scuba divers who have to administer emergency oxygen in the field. The equipment at the scene of diving accident are vastly different from that in hospital setting. Therefore, recommending that a non-breathing dive accident victim be given

mouth-to-mask ventilation over demand valve positive pressure resuscitation is impractical. A dive accident victim needs 100% oxygen. Mouth-to-mask ventilation can only deliver 16%. For a victim of arterial gas embolism, the difference between receiving 100% oxygen and 16% oxygen can literally mean the difference between life and death.

#### What about Panama, Jack?

The good news is that I recently obtained my PADI openwater C-Card in Panama while stationed there as a U.S. military officer. The bad news is that I waited until the end of my three year tour there to obtain it. If I only knew how wonderful diving is, I would have become certified years ago! I have seen many articles in your magazine about Aruba, the Bahamas and even Borneo and how wonderful diving in those locations is. What about Panama? With Caribbean to the north and Pacific to the south, Panama is a diving haven. Oh well, I guess until diving becomes more commercialized in Panama, it will remain a "secret" for U.S. military members assigned there who are recreational divers (there are many).

Greg McCaffrey Sterling, Virginia

If you'll kindly check our January/February 1990 issue, you'll find an article about Panama on page 74. It's been three years, perhaps we're due for another.

#### Missing At See

I want the editors of *Scuba Times* to know that I enjoy your magazine and find it filled with interesting and entertaining articles. But I have to admit my friends and I got a real laugh out of a picture you displayed on page 66, in the article "Safety at Sea," in your October 1993 issue. The picture shows a female scuba diver loaded down with the latest safety gadgets for scuba. There is just one problem, she has everything, expect her regulator! Someone obviously did not check her air supply!

The picture did bring to my attention a constructive thought. It reminded me that sometimes scuba divers are so wrapped up in remembering ever little detail before a dive that we usually do forget the obvious. That's what buddies are for!

Alice DeSouza PADI/SSI Century Diver Anvandale, VA The studio photo was meant to show the ridiculous amount of extraneous gear we divers can and do buy. No offense, but we just assumed that certified divers know they're supposed to wear a regulator when they dive.

#### **Desperately Seeking Shadows**

In the December issue of *Scuba Times* an article written by Doug Perrine entitled, "Mystery of the Mantas" mentions a film created by Howard Hall called *Shadows of the Desert Sea*.

I recently saw this film on television and was impressed unlike any documentary has ever done so! How can I obtain a copy of this film, is it available to the public? Any information would be greatly appreciated! Thank you.

James Gallucci 2944 Alpine Way Laguna Beach, CA

Bad news, Jim. The film is not available on home video. However, to obtain a catalog of videos from the production company write to: The Nature Series, Thirteen/WNET, 356 W 58th St, NY, NY 10019.

#### **Harbour Master**

Regarding your call for information from people who have dived around Harbour Island, Bahamas pre- and post-hurricane Andrew, I have made over 100 dives there, including about 25 after the storm.

The reefs are in magnificent shape. Diving deep sites like The Cave, Pinnacle, Plateau and The Arch, you would never know the storm passed over the Island. On my dive to the thirty-five foot Sea Gardens, for instance, I saw dozens of tall, healthy elkhorn corals.

As a long-time subscriber, who relies on *Scuba Times* for its objective reporting, I'm glad to help set the record straight for other readers.

You should also know that, topside, Harbour Island, one of the prettiest in the Bahamas, has been totally restored.

> Roanne Kulakoff 244 Madison Avenue New York, NY

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#### **DIVER'S DATEBOOK**

#### MARCH

Oakland. Seaviews '94 will be held March 12-13 at the Oakland Convention Center in Oakland, California. The event will include water-related exhibits, fashion shows, an underwater photo and artist's display, seminars, and the Saturday night Underwater Film Festival.

Monterey. The 10th annual California Chocolate Abalone Dive is being held on March 26 in Monterey. Aquarius Dive Stores will sponsor the event with a portion of the proceeds benefiting the Pacific Grove Hyperbaric Chamber/Marine Rescue Unit, and Diver's Alert Network. For more information call (408) 375-1933.

#### APRIL

**San Diego.** A multi-interest, scientific expedition will depart from San Diego on April 7 to Clipperton Island, one of the most remote dive destinations in the world. Nine marine biologists will be

studying shells, fishes and the corals of this remote coral atoll. For details on joining, call (619) 579-8405.

San Diego. The Discover Diving Equipment and Travel Expo will be held April 8-10 at the Town & Country Convention Center. The event will be held in conjunction with the 1994 International Conference on Underwater Education (IQ94). To purchase advance tickets, call Watersport Publishing, Inc. at (800) 776-3483, (619) 697-0703.

Boston. The 1994 Boston Scuba Symposium hosted by PDIC and The Underwater Club of Boston is scheduled for 10 AM, April 23, 1994, at the Colonial Hilton, Wakefield, Massachusetts. Presentations will include Diving Lake Champlain, Diving Maine's North Coast, Preparing Recreational Equipment for Basic Wreck Diving and North Atlantic In-Water Photography with Dave and Sue Millhouser. For details call (508) 897-0877.

#### MAY

**Bahamas.** Cruise Exuma Sound, Bahama on the Nekton Pilot May 1-8 with John Lopinto, chief photographer at the Palm Beach Post. Mr. Lopinto has published work in numerous publications including *National Graphic, National and International Wildlife*, and *Underwater USA*. For details contact Lynn Oetzman or Sherri L. Shipley at (305) 463-9324/ (800) 899-6753.

**Galapagos.** Professional underwater photographer Doug Perrine and biologist Godfrey Merlen, author of *Fishes of Galapagos*, will lead a special expedition on the 60-foot dive vessel, Sulidae, to the far northern islands of the Galapagos group May 21-31. For details contact Innerspace Visions at (305) 669-0118.

Send news five months prior to the event to Scuba Times Magazine, 14110 Perdido Key Drive, Pensacola, FL 32507.



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# DIVERSIONS

#### ALPHA ONE GETS QUARTER MILLION

Alpha One, a center based in Maine for developing independent living opportunities for

people with disabilities, has been awarded a federal grant for an innovative, nationwide scuba diving program. Open Waters is designed to expand scuba diving to people with disabilities. The three-year project will include a toll-free hotline to reach people with disabilities, a series of seminars to recruit and train diving instructors and a national conference to spotlight state of the art diving techniques and equipment for people with disabilities.

For more information contact Alpha One president, Steven Tremblay at 800-640-7200 (voice or TT).

#### AGGRESSOR BOASTS DECADE OF DIVING

OPEN WAT

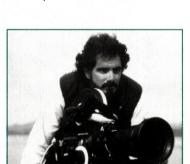
The Aggressor Fleet, owners of the largest fleet of live-aboard dive boats in the world, is celebrating 10 years of diving in 1994. According to Aggressor, the concept was to provide a higher level of service and amenities to divers and underwater photographers than was available through any other live-aboard operation at the time.

The concept proved successful. Beginning with the Cayman Aggressor in 1984, the company now runs nine vessels in top dive destinations worldwide

including: the Bay Islands, Belize, Cayman, Coco Island, Galapagos, Kona (Hawaii), Palau, Truk Lagoon and the Turks and Caicos.

"We have developed tremendous repeat business through innovative ideas in vessel design and amenities," said Capt. Wayne Hasson, Managing Director for Aggressor Fleet. "Our goal continues to be to set standards in live-aboard luxury and diving experiences."

Hasson hinted that a new state-of-the-art Aggressor "dive yacht" being built "will surpass anything now available." For more information contact Aggressor Fleet at 800-348-2628. ►



#### RED TAPE WRAPS HAWAIIAN REEFS

A petition drive supporting permitting and funding of a statewide mooring buoy system for Hawaii has been launched by Project ReefKeeper, an international coral reef conservation organization.

"While anchors continue to maul Hawaii's fragile reefs, the state's Division of Boating and Ocean recreation is not expected to meet a December 1993 deadline for approving permits for a statewide system of mooring buoys," explained ReefKeeper Director Alexander Stone.

So what's the problem? According to Stone there are many. His group claims that the state is adamantly opposed to allowing any privately initiated placement of mooring buoys by dive shops.

"Even if the money were already there, the buoys could still not be deployed because the state seems to have more pressing things to do than review the permit applications that have been gathering dust since June of 1993," complained Stone.

Project ReefKeeper has launched a petition drive to pressure the Division of Boating to get off its transom and process the permits. For more information contact Project ReefKeeper, Pacific Region, 350 Ward Avenue, Suite 106-542, Honolulu, HI 96814 or call 808-533-7752.

#### FROM STILLS TO THRILLS

Photographer Bob Talbot, whose work has appeared everywhere from *Omni* to *American Photographer*, has recently released a video called, Talbot—The Video: Dolphins and Orcas.

Many are familiar with Talbot's spectacular posters of dolphins and whales

which are available in bookstores nationwide.

The video was shot over a six year period in the Bahamas, British Columbia and Hawaii. Sequences of spotted dolphins, pilot whales and orcas are set to the ethereal music of Mannheim Steamroller and Ray Lynch. For more information call 310-394-5854.



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# NEW WAVES

#### PUT MORE BOUNCE IN YOUR FIN KICK

Force Fin, a California-based fin manufacturer, has joined forces with Uniroyal Chemical to create the only polyurethane fins made in the world today. What this means, according to Force Fin inventor Bob Evans is "superior resilience for increased snap and rebound which increases propulsion and energy efficiency."

"Every pair of Force Fins now comes with a hang tag from Uniroyal Chemical that explains the benefits of our liquid-cast polyurethane fins," said Evans. For more info on Force Fins call 800-FIN-SWIM. Circle A on the Reader Service Card. ■

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includes motorized film advance, power rewind,
automatic ASA/ISO film speed setting, and a built
in flash for topside photography. For more info
call 516-752-0066. Circle B on the Reader Service
Card.

#### A BETTER SNORKEL, REALLY?







In diving it seems that building a better mouse trap is most difficult in the snorkel category. However, DiVaire, a Michigan company claims to have radically reshaped snorkeling of the 90s with their newly-patented DiVaire snorkel.

Early snorkels had no valves. Later models integrated a purge valve. Now, DiVaire has a three valves to help keep water out and get air in. A unique side mounted exhaust valve improves the fresh air content in the upper portion of the device, according to DiVaire. This reduces headaches caused by the intake of carbon dioxide. With it's location above the water line, it's also a second intake valve. The downward facing intake valve prevents water entry from the top as well as keeps water out when the snorkel is totally submerged. The lower purge valve aids in expelling whatever water is left after passing through the complex tube.

DiVaire also has a "fluid pump" located just above the side mounted valve to maximize air and water flow within the snorkel interior. With it's hydrodynamic design, this snorkel may have actually improved on diving's mouse trap. Circle C on the Reader Service Card.

#### CERAMIC DRY SUIT GETS FIRED UP

With the world going high-tech in every category, dry suit manufacturer, Mobby's, has introduced a bioceramic material for dry suit diving. This is no clay pot, fired in an adobe kiln. The CAP (Ceramic Aluminum Polyvinyl chloride) inner shell material offers unparalleled heat retention, while eliminating odor and bacterial growth on the inside of the twin shell dry suit, according to Mobby's. Composed of seven inorganic and oxidized metals, bio-ceramics utilizes the properties of far-infrared radiation to increase heat retention. In layman's terms, the suit keeps you warmer than standard PVC (polyvinyl chloride) materials and other nonbioceramic materials, according to a Mobby's press release. To learn more about staying warmer with ceramics, call Mobby's at 800-773-8787. Circle D on the Reader Service Card. N

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The incredibly crystal clear waters which abound Curaçao are attracting more and more divers every year. The cause of all the excitement is visibility up to 150 feet, water temperature averaging 74 degrees, and the best of diving, be it shallow reef, beach, wall or shipwreck. All this, plus Curaçao's famous highlights like the floating bridge, Downtown Willemstad, good shopping and many fine restaurants and fun casinos, make Curaçao a diver's delight. Write now to one of these hospitable hotels for your special dive package.



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Fax (599-9) 641781. ITR: U.S./
Canada (800) 223-9815.

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(599-9) 618200. Or ITR, Four Park
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233-9815, Telex 225559 ITRS UR,
Fax: (212) 545-8467.

HOTEL CLUB SERU CORAL Koraal Partier #10, Curaçao, Netherlands Antilles, Tel: (599) 967-8499, Fax: (599) 967-8256.

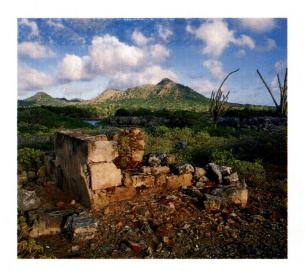
Photos by Len Kaltman & Dietmar Rein

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For further information contact your travel agent or the Curação Tourist Board, 400 Madison Ave., N.Y. N.Y. 10017, Tel. (212) 751 8266 or (800) 332 8266.







Above: There's always a strong attraction to grandeur and mystique of Bonaire's pink flamingos. By F. Stuart Westmorland. Left: Bonaire's picturesque Washington Park by Graeme Teague. Above right: F. Stuart Westmorland captured this lizardfish at the airplane wrecks on Aruba. Below right: Bonaire's wreck of the Hilma Hooker attracts thousands of divers per year.

ay "down-island," as they like to say in the Caribbean, almost touching the continental mass of South America, lie the three islands known as the ABCs—Aruba, Bonaire and Curaçao. These exotic island oases of European ancestry and influence were all members of the Netherland Antilles until 1986, when Aruba became independent. Nevertheless, the islands of the ABCs are still sisters under the sea.

No more than 50 miles from Venezuela, all three are washed by the North Equatorial Current, which brings a constant source of warm, clear water and fish-sustaining nutrients to the ABCs' shores. Although the official language is Dutch, and most islanders speak English and Spanish fluently, the native language is a distinctive local blend called Papiamentu. Visitors are usually delighted when they first hear this musical patois, which combines elements from at least six European and African languages!

Despite their many similarities, Aruba, Bonaire and Curaçao each have distinct personalities. You can't truly say you've seen the ABCs until you've visited each in its turn.

BY JEAN PIERCE & TOM MORRISEY

11/1

Like its Antillean sisters, Aruba is technically a desert island. Low rainfall and nearly constant breezes have given the island a nearly Southwestern landscape of scrub, cactus and bonsai-like divi-divi trees.

Aruba has, without a doubt, the very best beaches in the ABCs, and arguably some of the best beaches in the entire Caribbean. The sweeping expanses of white, talcum-powder-like sand have not escaped the attention of resort developers. Both Palm Beach and Eagle Beach have their share of large, ultra-modern resorts and casinos. While not quite as developed as it is in the key islands of the Bahamas or the Caymans,

tourism is in full bloom on Aruba and, indeed, is the principal industry on the island.

For shore diving Baby Beach Reef, in 20-60 feet of water is easily reached by even new divers, and its impressive display of elkhorn coral and healthy lobster population are unusual for a dive reached off a sand beach.

Other shore dives on Aruba include Cabez Reef (Aruba's most easterly dive, in 50 feet of water) and Natural Bridge (which offers stunning rock formations both above and below the water). But these dives are, as are all dives on the current-swept eastern and northern shores, best reserved for advanced divers.

The most popular offshore site is undoubtedly Aruba's "ghost ship," the *Antilla* Wreck, which lies in 60 feet of water just south of westerly California Point. This German freighter, virtually fresh out of

the boatyards at the time, was scuttled by her master in the early days of World War II.

The largest wreck in the entire Caribbean, the 400-foot *Antilla* is often dived twice by visiting divers—first as a conventional, daylight wreck dive, and later as an eerie, yet beautiful, night dive.

Farther south, the *Pedernalis* Wreck, sunk in 50 feet of water, is another WWII relic, this one an oil tanker torpedoed by a U-Boat. Don't look for the bow or stern, though. In an act of poetic justice, they were cut off, raised, welded together and used in the Normandy invasion on D-Day. But the section that remains is an ideal wreck dive for beginners, with cabins and even a couple of torpedoes still lying intact on the bottom. Another popular "tin dive" is the Tugboat Wreck, near Oranjestad, where mantas and eagle rays are sometimes seen in only 40-90 feet of water.

For pure reef beauty, coral- and sponge-rich Lago Reef (120 feet), followed by fish-crowded Commandeurs Reef (40-100 feet) are a good two-tank day, with the two sites only a short boat ride apart.

But leave some shore time to really appreciate Aruba. On Tuesday night, go to the Aruba Historical

Museum and absorb some local color at the weekly Bon Bini (Welcome) Festival. Take a picture from the top of the Hooiberg or shop 'till you drop on Nassaustraat (that's right, "Nassau Street"), where the merchandise is not duty-free, but bargains can be found, nonetheless. Dine on your choice of cuisine, from iguana soup and stewed goat meat (both Antillean traditions) to Continental cuisine with a great view from a Palm Beach hotel. If you can only visit the Caribbean once, you could do far worse than to visit Aruba, which is off the beaten path, but worldly enough to offer a bit of dazzle.



BONAIRE

The combination of dive-operator concern for the reef system and a permit-generated budget for maintenance of a Marine Park sums up just how seriously Bonaireans take reef preservation.

They have good reason to be that way. On many Caribbean islands, scuba diving is an important industry; on Bonaire, dive tourism is *the* industry. Even the license plates here say, "Diver's Paradise."

At most hotels on the island, air stations are standard equipment. Just about every hotel of any size has a dive shop on premises (and at least one hotel has two). This is where shore diving consistently offers the same quality as boat-accessible sites.

"We are very fortunate here; the fringing reef system is superbly ac-



cessible," says Kalli DeMeyer, the oceanographer who manages the Bonaire Marine Park. The park completely surrounds Bonaire and its little satellite island, Klein Bonaire, and includes everything from the high-water line down to the 200-foot contour.

"Just about everyone who comes here will boatdive," DeMeyer adds. "You need a boat to get to the sites around Klein Bonaire, and there are some other sites, such as La Donya's Leap, and Rappel, where, as the names imply, the terrain makes shore access difficult. But for the most part, you can dive right 'out of the boot' of a car all up and down the island, and be on the reef in a matter of minutes."

To get to dive sites, all you have to do is get a map, grab your gear and go. Sites are marked along the roadsides by distinctive yellow-painted duffelbag-size rocks with the name of the sites hand-

lettered on them.

"On most sites south of town, the top of the reef slopes very gently down to about 100 feet, and the reef will have a wide belt of soft corals, which are very pretty," says DeMeyer. "The northern sites, on the other hand, will have narrow-topped reef to about 35 feet, and then it drops abruptly—not a wall, but steep, nonetheless."

The most popular dive on the island is easily the *Hilma Hooker*, a marijuana smuggler's boat which made the transformation from reefer to reef after she limped into harbor with engine problems and very nearly sank at the dock. Local dive operators convinced the government to scuttle the boat near shore, and she can now be dived from the beach or from a boat. Carl's Hill, off the northwest tip of Klein Bonaire, is popular with photographers; the reef here is so steep that it can actually be considered a wall. Karpata, named after the marine study station of the same name which sits above it, can be tricky to enter when the surf is running rough, but rewards the diver with intriguing underwater gullies.

DeMeyer points out that the reef-conservation ethic around Bonaire is so infectious that divers generally add to, rather than detract from, the effort.

"People like this ethic," says DeMeyer, and that fact is self-evident by the high repeat trade Bonaire enjoys from dive travelers. In a way, it's a self-propagating philosophy; because people enjoy Bonaire's approach to reef conservation, they can come back and enjoy the same quality of diving, year after year after year.

#### CURAÇAO

Bring *lots* of film when you come to Curaçao, the largest and most varied of the three islands. If Aruba is the jet-setting playgirl, and

Bonaire the sexy tomboy, then Curação is the urbane sophisticate of this trio. Nestled between its two sister islands, Curação is the pivotal center for commerce with Venezuela.

Cameras click at Willemstad harbor, where rows of Dutch-inspired, pastel-colored houses have a storybook image. Stone-walled 18th-century forts guard the entrance to the bay. An enormous floating bridge that spans the wide harbor entrance swings open like a giant garden gate, admitting cruise ships and small schooners laden with tropical fruit, fish, spices and oils for the town's quay-side floating market.

Unlike Aruba and Bonaire, Curação is a relative newcomer to the tourist trade, which means that bargains can be found and crowds are rare. For divers, this is especially good news; they'll find little boat traffic and lightly visited sites. Local biologists claim that every hard coral in the Caribbean—55 species in all—is represented here, along with some 30 different soft corals.

Macro life is especially plentiful here, and the dropoffs are astounding, with prolific plate corals that stairstep down the walls. You can visit gigantic sponges and black coral before ascending to the more ample bottom times available in the shallows, where you'll still find enough brain coral, staghorn elkhorn, meadow and stone coral to keep your camera happy. Director's Bay, on the east end, is one of these thrilling



With Dutch architecture and tropical colors, Curação is where Holland meets the Caribbean in a happy blend. Orange cup coral on Curação's wreck The Superior Producer. Photos by F. Stuart Westmorland.

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wall dives, with a dark abyss below that drops, as local diversaters are fond of saving, "to China."

Also on the east end is what must be the most-dived spot in all of Curaçao. The Towboat, a 25-foot tug resting level in only 17 feet of water, is popular with divers and snorkelers alike. This site is exceptional at night, when the beautiful orange tubastria coral bloom, and the sunken tug resembles an enormous Christmas package.

Another wreck which shouldn't be missed is the *Superior Producer*, a 200-foot freighter sitting just off the entrance to Willemstad harbor. Loaded with T-shirts, jeans and tennis shoes, the ship pulled out of the harbor en route to Venezuela and then promptly sank in only 110 feet of water! The clothing was put to good use by the locals, and divers have been just as grateful. The wreck can frequently be seen in its entirety from the surface—further proof of the clarity of Curação's waters.

For a coral fantasyland, visit the Mushroom Forest, a vast expanse of mountainous star coral which has eroded into fanciful toadstool-like formations. Since it's possible to have a delightful dive here without exceeding 60 feet, bottom time will be plentiful.

Curaçao's reef is rarely far from shore, keeping boat rides short and shore diving convenient. For even more variety, day-excursions can be booked to Klein Curaçao, a tiny island several miles to the southeast. You'll be rewarded for the effort with pristine walls, large fish, nurse sharks, and possibly even mantas and pods of porpoise.

Visitors to this isolated section of the Caribbean could easily spend all of their time on Curação or on either of its neighbors and still go home satisfied and smiling. But to visit all three is a feast for the senses—a chance to see all the best features of Caribbean diving in one beautiful, Dutch-accented package.

Jean Pierce (Napa, CA) and Tom Morrisey (Romeo, MI) can now speak 15 different phrases in Papiamentu, but have no idea what any of them mean.

The authors would like to thank KLM Royal Dutch Airlines, Lions Dive Hotel and Marina, Harbour Village Beach Resort, Hyatt Regency Aruba Resort and Casino, Princess Beach Resort and Casino, Underwater Curaçao, Coral Cliffs Diving, Seascape, Great Adventures Bonaire, Peter Hughes Dive Centers, Captain Don's Habitat, Sea & Sea, DEMA, and Marcella Martinez and Associates for their assistance in preparing this story.

#### **DIVE TRAVEL INFO**

#### ABCs

Number of islands: Three

Size: Aruba: 20 x 6 mi.; Bonaire: 24 x 5

mi.; Curação: 38 x 5 mi.

Population: Aruba:70,000; Bonaire:11,000;

Curaçao:150,000

Languages: Papiamento, Dutch, English,

Spanish

Political affiliation: Territories of the

Kingdom of the Netherlands

**Entry documents required:** passport or proof of citzenship and return ticket

Electrical current: Aruba:110 volts/60 cycles; Bonaire & Curaçao:110–130 volts/

220 volts/50 cycles

**Highest elevation:** Aruba:617 ft.; Bonaire:784 ft.; Curaçao:1,239 ft.

Nearest major landmass/distance:

Venezuela Aruba:15 mi./Bonaire:50 mi./ Curação:35 mi.

Airlines servicing destination: Air Aruba, ALM, American, BWIA, Continental Cities of departure: New York, Miami,

Atlanta, Los Angeles

#### COSTS

Price range of hotel room: \$35-\$280 per

night/ 2 people

Avg. cost of two-tank dive day: \$50 Exchange rate: \$1 US = 1.77 guilders or

Aruban florins

Departure tax: \$10

Avg. flight cost from:

Miami: \$370 New York: \$385 Los Angeles: \$590 Atlanta: \$385

#### DIVING

Winter Summer

Water temp: 77°F

7°F 82°F

U/W visibility: 60–150 feet year-round
Air temperature: 82°F year-round
Best diving months: August–October

Camera Rentals—Still/Video: yes

E-6 Film Processing: yes

Nearest chamber: San Franciscus

Hospital—Bonaire; St. Elizabeth Hospital—

Curaçao

Wall diving? yes Wreck diving? yes Top 3 dive sites:

#### ARUBA

1. Antilla 2. Baby Beach 3. Commandeurs

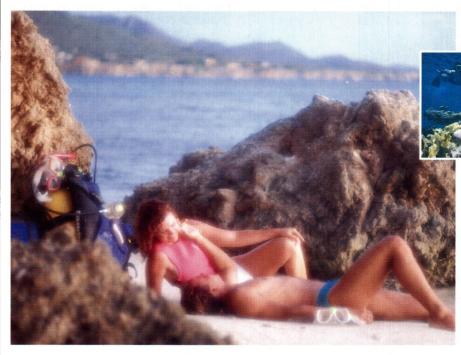
#### **BONAIRE**

1. Old Town Pier 2. Karpata 3. Carl's Hill

#### CURAÇÃO

- 1. Superior Producer 2. Mushroom Forest
- 3. Towboat

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# THE BEST KEPT SECRETS OF

you've ever read anything about diving in Belize, you already know that Ambergris Caye is the diving capital. Its concentration of dive shops, restaurants and hotels surpasses anywhere else in the country. You also know that the world's second largest barrier reef delivers diving on a silver platter from Ambergris to Guatemala. And it's common knowledge that Belize has three offshore atolls (Turneffe, Lighthouse and Glover's) that are the crown jewels of Belize's diving. Probably Belize's most famous character is the 480-foot deep, 1,000-foot in diameter Blue Hole of Lighthouse Reef.

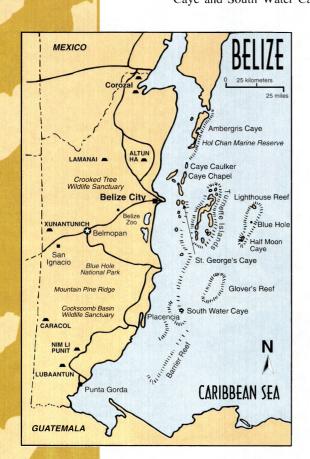
But, I'll bet you didn't know that there's a Blue Hole National Park located 30 miles *inland*. This is not "the" Blue Hole. It's an inland, fresh-water cenote. And, did you know that there are four islands scattered along the barrier reef (other than Ambergris) with full-service, pristine diving? They are Caye Caulker, Caye Chapel, St. George's Caye and South Water Caye. Both Caye Caulker and Caye Chapel have their own air

strips (\$60 US roundtrip from Belize International, \$35 US from Belize City Municipal) or can be reached by boat taxi from Belize City (\$25 Bz roundtrip). These islands are less than a mile from the barrier reef and are blessed with white beaches, swaying coconut palms and a multitude of exotic birds. Plus, Belize's first golf course is under construction on Caye Chapel with a scheduled completion of summer 1994.

Directly west of Belize City is St. George's Caye with its two dive resorts but no air strip. Not to worry though, a scenic 30-minute boat ride gets you there. In addition to excellent barrier reef diving, one of the resorts offers nitrox diving.

Far south on the barrier reef, South Water Caye houses one dive resort and rests directly at the edge of the reef. It's one of the most remote resorts in a country that's over stocked with remoteness. The diving is pristine and the resort even offers air conditioning.

So, there's Ambergris, three atolls and four islands. That's it, right? Not so fast, amigo. There are still more bountiful diving opportunities to the south. From Belize's two most southern cities, Placencia and Punta Gorda, dive operations will transport divers to what some say is Belize's most virgin diving. This claim stems from the fact that less divers and fishermen visit the extreme southern barrier reef. Headlining this area are the Silk Cayes, three small islands which kiss the barrier reef and bring on the possibility of pelagic life. Inside the reef, there's Laughing Bird Caye, a



DOUG PERRINE & FRED GARTH



By Joan Bourque

Above: While touching sea

life is taboo for many, this wild

dolphin hangs around Light-

house Reef and allows human

interaction. Below: Lighthouse

Reef's picture-perfect Half

Moon Caye is home to varied

wildlife above and

below.

national preserve, where there's diving only 10 miles from Plancencia. Here, divers and snorkelers can find red rope sponges and azure vast sponges—normally found below 20 feet—in less than six

feet of water!

With this plethora of reef life, it's easy to see why diving and fishing created a boon of tourism in the 70s and 80s. Now, with the right attitude and abundant natural resources, Belize is poised for an onslaught of modern ecotravelers, who seek the inner peace of the total vacation experience.

This nirvana vacation is achieved by touring both land and sea attractions. While the sea experiences are obviously extensive, so are the land opportunities. Amid forests of

towering mahogany, zacota and other tropical hard-woods, roam jaguar, tapir, deer, jaguarundi, ocelot, bobcat, armadillo, agouti, gibnut, coatimundi, porcupine, spider monkeys, black howler monkey and the Baird's tapir, the national animal of Belize. Flocks of egrets, herons and storks wade through the wetlands, along with over 500 other species of birds.

Belize is a landscape of cool mountain ridges covered with pine forests, dark green rivers shaded by mangrove forest, white river rapids, caves big enough to house a convention center, a thousand-foot-high waterfall, quaint Mennonite farms and brooding Mayan pyramids. The recently discovered "lost city" of Caracol may be the largest Mayan complex in Central America. Its warrior queen subjugated other city-states in both Belize and Guatemala.

You can hike or ride horses through the jungle, go spelunking, visit a butterfly farm, join a research project investigating wild dolphins or excavating Mayan artifacts, cast for bonefish or tarpon or troll for marlin.

As tourism has grown so has the choice of accommodations, which now span a wide range of flavors from modern luxury hotels in Belize City and Ambergris Caye to boarding with a local family with no electricity or running water at the Community Baboon Sanctuary in Bermudian Landing.

For a country about the size of Massachusetts, Belize has a multitude of choices. With 80 percent of its forests intact (as opposed to two percent in similar-

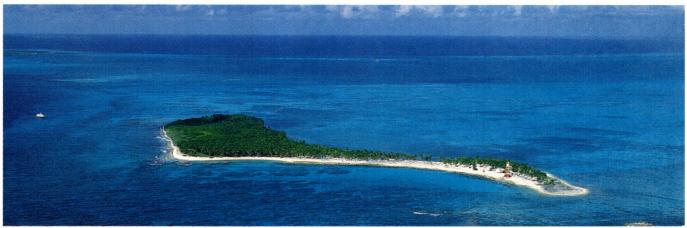
sized El Salvador), it's easy to find unexplored territory. The choices are so vast that one or two weeks are just enough to scratch the surface—and to help you plan your next visit.

If you've never "done" Belize, you must see Ambergris, the Blue Hole and the atolls to qualify. However, you can't stop there. This country has too many unbeaten paths anxiously awaiting your traveling shoes.

See the following pages for a listing of Belize's Top Ten Land Excursions.

Fred Garth, STM's managing editor, and Doug Perrine, an STM contributing editor have visited Belize over a dozen times combined.

Thanks to Blue Bonnett Tours, TACA airlines, St. George's Caye, Lighthouse Reef Resort.



By Doug Perrine



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#### TOP TEN LAND EXCURSIONS

#### OF BELIZE



Mayan Temple of the Sun Altun Ha ruins by Doug Perrine.

Belize Zoo and Tropical Education Center—just 30 miles from Belize City on western highway, the zoo is home to over 100 species of Belizean wildlife, many of them endangered. The zoo began in 1983 and provides a natural setting for the animals so they are seen much they way they appear in the wild.

Altun Ha Ruins—30 miles north of Belize city, these ruins are accessible by land or sea and were discovered in 1957 by miners digging a quarry to build roads. Further excavation eventually revealed 13 buildings and two plazas as well as the largest (10 pounds) jade artifact ever discovered in the Mayan empire. The head is of Kinich Ahau, the sun God and was carved around 600 A.D. from one piece of jade. Still, you'll only be able to enjoy the ruins as Ahau's head is locked up in a Belizean bank

Crooked Tree Wildlife Sanctuary
—located just north of Altun Ha, this
is the home of the Western
Hemisphere's largest flying bird, the
jabiru stork. With its 12-foot wingspan
the stork is seen in abundance between
October and February.

Community Baboon Sanctuary—the name is important to explain, in that this is a sanctuary created by the local community of Bermudian Landing, instead of the government, to protect their jungle friends. Additionally, the "baboons" are actually howler monkeys but locals refer to them as baboons. Since 1985 the population has grown from 500 to 1400 howlers. A guide is suggested and can be found in the village. Guides are also well versed in the local flora and fauna.

Blue Hole National Park—This is not "the" Blue Hole at Lighthouse Reef, but a park named for a beautiful inland, fresh-water cenote 12 miles southeast of Belmopan. Visitors cool off in the clear waters or perhaps visit St. Herman's Cave, another nearby cenote. The park is also brimming with wildlife from jaguars to a variety of rare bird species.

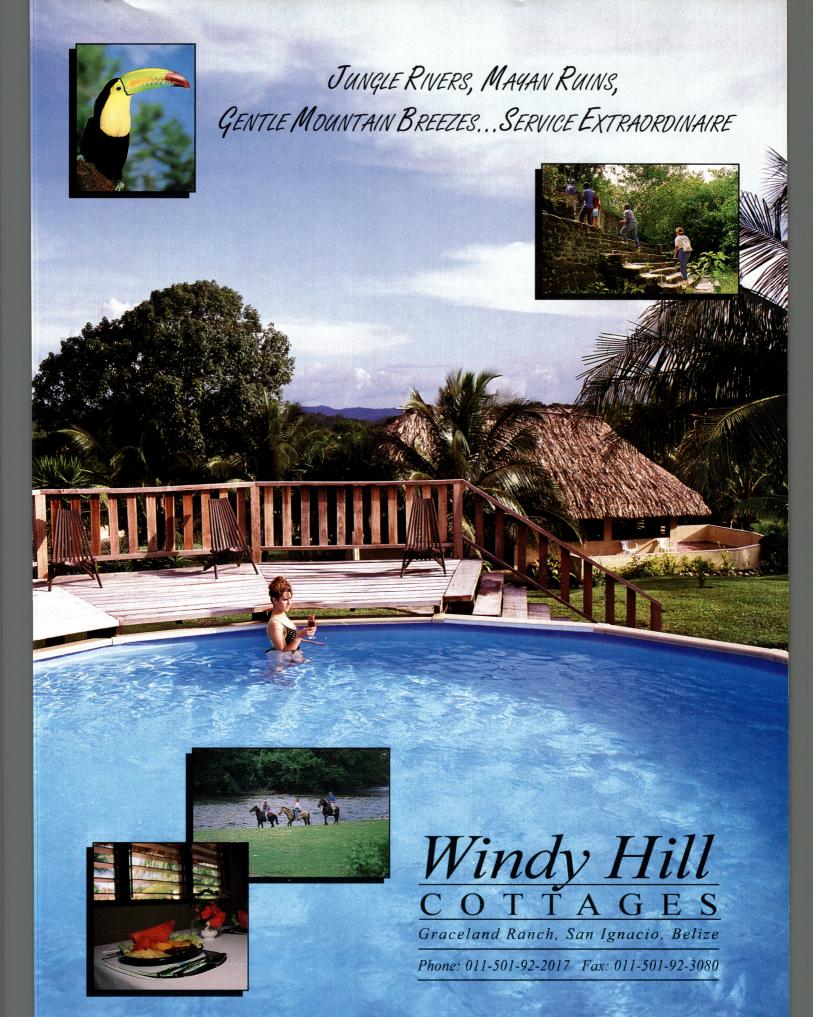
San Ignacio—just a few miles from the Guatemalan border, this western town is abundant with jungle lodges and hotels and is surrounded by attractions. Two ancient Mayan sites are nearby, Cahal Pech and Xunantunich. The later is perched on a ridge overlooking the Cayo district and was once a primary ceremonial center. Another Mayan attraction, Chechem Ha is a large cave which still houses intact Mayan pottery. The cave is only accessible by four-wheel drive and a tough hike. Horseback rides through the jungle, canoeing the local rivers or kayaking the whitewater can be arranged by your hotel.

Shopping in Guatemala—just a few miles west of San Ignacio across the border is Melchor, a Guatemalan city with an abundance of handicrafts. Less than two-hours drive from Belize City, you'll find everything from coffee to jewelry to hammocks to woven rugs. Prices are cheap and bargaining is the norm.

Pine Ridge—perhaps the most surprising area of Belize is Pine Ridge where most describe as being like the Smoky Mountains of North Carolina. The climate is dry and cool and forests of pine trees abound. Also here, are Belize's most spectacular waterfalls. Hidden Valley Falls, also known commonly as 1,000-foot falls is here along with Rio Frio Cave and Rio on Pools.

Carazol—at the southern edge of Pine Ridge is Carazol, a Mayan ruin that is gaining much recognition. First discovered in the 1930s, it wasn't until a major excavation in 1985 that the magnitude of Carazol was realized. It is now known that Carazol was a key Mayan city with almost 200,000 citizens and 4,000 structures over 55 square miles. Permits are required prior to visiting.

Jaguar Preserve—located south of Dangriga and actually named the Cockscomb Basin Wildlife Sanctuary, this preserve covers 100,000 acres and is home to 2,000 jaguars. The jags are elusive and skittish but there's plenty of wildlife to see if you miss the cats. ▶





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Hall filmng manatee by Doug Perrine.

#### FILMING BELIZE

Five hundred feet above Lighthouse Reef the plane hanked sharply, leaving Half-Moon Caye behind. On the outer rim of the reef, Wave Dancer and the Belize Aggressor were dropping divers. In the center of the lagoon, the Blue Hole shined like a sapphire set in the ring of the atoll. As we dropped low over the corrugations of the reef, Howard's 16mm camera began to hum.

Why had Howard Hall chosen Belize as one the major filming locations for the one-hour National Geographic special "Jewels of the Caribbean Sea?" For one thing, Belize is the only country in the Caribbean with all four major reef types represented: patch reefs; fringing reefs; barrier reefs; and atolls. In addition to coral reef life, marine animals which are rare or have been completely eliminated in other areas can still be readily found, including estuarine crocodiles, manatees, and several kinds of dolphins.

Shortly after photographing reef sharks hunting on the shallow patch reefs of the lagoon, we were in the tropical forest of Half-Moon Cave filming a red-footed booby sheltering its chick in a nest only a few feet away. In the background magnificent frigate birds puffed out their enormous scarlet throat pouches in an exuberant display of seabird machismo. On the mainland, we could film hundreds of species of birds, jaguars, howler monkeys and other exotic beasts. There were Mayan ruins, waterfalls and hardwood forests waiting for our cameras. Had Howard made the right choice? See for yourself, April 13, 1994 at 8 p.m. on TBS—check local listings.

—Doug Perrine



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# CONQUERING COLUMBIA

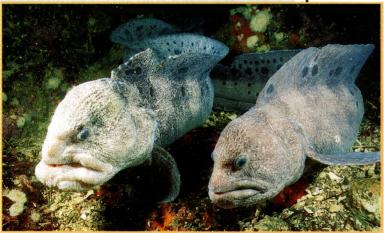
A SCUBA TIMES EXPEDITION

100

hen asked what I consider to be the world's finest diving destination, my stock answer is: "If there are ten greatest diving spots in the world, British Columbia is definitely in the top five!"

This response is always greeted with disbelief and skepticism. Isn't the sky over the Pacific Northwest always rainy? "No", as many hearty "Canucks" (Canadians) have explained to me, "British Columbia gets so much sunshine that the clouds sweat and perspire from all of the hot air!"

I was glad to prove my point last autumn by leading a *Scuba Times Magazine* Expedition to Queen Charlotte Strait, British Columbia. While we were sure to encounter a wonderland of invertebrates, our prime search was for the coveted orca, the whale they call Killer.



BY FRANKLIN J. VIOLA



The expedition began out of Port Hardy, a tiny logging, mining and fishing town on the northeast tip of Vancouver Island. Our host vessel was B.C.'s premier live-aboard dive boat, the *M/V Clavella*. In operation since 1980, the 10-passenger, 61-foot wooden vessel is skippered by her owner John deBoeck. A native of Nanaimo, Vancouver Island, Captain John has been diving the islands and straits of British Columbia for over 20 years. Besides his extensive knowledge of 200-plus dive sites and the bizarre marine invertebrates that make cold-water diving so popular, Captain John is extremely well-versed in the identification and genealogy of orcas and Pacific whitesided dolphins.

Located between the extreme northern tip of Vancouver Island and mainland British Columbia, Queen Charlotte Strait is a high intensity waterway featuring world-record tidal currents that dictate when divers may safely enter. Her postcard

dive sites are nestled among towering old-growth evergreen forests and intensely fissured rocky coastlines which thrust deep into aqua-green Northern Pacific waters. Instead of seagulls and frigate birds, the skies are patrolled by majestic bald eagles.

Below the tidal interface, the subaquatic world turns into steep pinnacle walls while the evergreen flora gives way to forests of kelp. Encrusting invertebrates such as barnacles, sponges, plumose anemones and cold-water soft corals greet divers descending through the undulating kelp. As abruptly as the terrestrial landscape gives way to the marine environment, so too does the pleasant 75°F-air plummet to a bone-chilling 48°F. Yes, B.C. diving is definitely not bikini, sandy or temperate. And there aren't any dive sites named Barracuda This or Shark Alley That!

To get acquainted with B.C. water conditions, we began our diving on two popular sites known as Hussar Point and Seven Tree Island. I must confess that three months prior diving in Fiji, Little Cayman and Malaysia did little preconditioning for the frigid waters of B.C. Four of

the expedition participants (Paul Billington, David Hamilton, John Slater and Steve Farthing) and I were diving in dry suits. Our two other expedition participants, Frank and Joyce Burek, were from Houston. Due to their usual

tropical trip profiles, an investment in

expensive dry suits was unreasonable. So they donned layer after layer of Lycra, Darlexx, and neoprene. They too were veterans of previous B.C. adventures and never missed a dive due to water temperature.

#### Worth the weight

With 30 pounds of lead on my belt and an additional two pounds strapped to each ankle, I depressurized my dry suit and descended into a world of psychedelic encrusting invertebrates. White and orange plumose anemones with slender tentacles billowing out of tubular stalks covered nearly every inch of reef.

Scattered within this plush carpet were raspberry-red clusters of soft corals.

Representing the echinoderms were hundreds of long-spined giant red sea urchins grazing among the anemones. Their efficiency at removing algae made me wonder if they couldn't be sent on holiday to the Caribbean where some of the reefs there are in need of a good vacuuming.

Dazed by the abundance of life and color, I was not sure which direction to first point my camera lens. Yet I knew my bottom time would not come close to the 110 minutes of recent 40-foot dives in Little Cayman, so there was little time to waste. Previous B.C. trips convinced me low water temperatures not only decrease bottom time but also reduce the efficiency of camera strobes. Determined to squeeze every photographic second out of each dive, I fitted my strobes with customized wetsuits. There were snickers from the boat crew until they saw that the number of flashes and quick recycle time varied little from that of a tropical water excursion.

Our second day, now acclimated to the cold water, we dived Heard Island, Eagle Rock and Snow Fall Reef in Browning Passage. These were similar to our first dive sites, but with steeper drop-offs and bottoms in excess of 100 feet. Drifting along

the walls, we encountered numerous orange-peel nudibranchs grazing on the al-

gae covered ledges, which are appropriately named for the Florida citrus they resemble.

With still no orca sightings to mark in our log book, the highlight of Tuesday's diving came on a site called Hunt Rock,

designated by a navigation buoy on the western edge of Gordon's Channel. The dive begins 20 feet below the surface on a pinnacle which descends to a depth of 65 fathoms. The attraction here are four or five resident wolf

eels. While not recognized by scientists

as true eels, these grotesque Halloween-masked piscivorans have canine teeth, pit bull jaws and serpent-like bodies. Though their physical appearance is frightening, they are as playful as puppies especially when offered a delicacy of red sea urchins.

#### **Tremble Rock**

Wednesday morning started off with heavy cloud perspiration and nature's air-conditioning turned up to full throttle. Mid-October is getting late in the season for diving northern B.C. But not one diver was late to the 8 a.m. skiff departure. Of all of the dive sites we would explore, none were

more dictated by the time of slack water than Turret Rock.

A tiny island of granite and weathered pines, Turret Rock sits right in the middle of a navigable bottleneck connecting 700 square miles of inlet waters to the Pacific Ocean. Twice daily, tidal currents flood and ebb through this 600-foot-wide channel called Nakwakto

Rapids. With peak currents often exceeding 16 knots and some recorded at 22 knots, Nakwakto Rapids has earned a place in the Guinness Book of World Records as the fastest tidal current in the world. Because the island visibly trembles and shakes during this phenomenon, B.C. divers have renamed it Tremble Rock.

Captain John consulted the tide tables and planned our dive at slack tide, a window which would safely allow us 20 minutes of bottom time. The highly oxygenated waters around Tremble Rock provide nutrients for exotic marine life not found subtidally anywhere else in B.C. One such inhabitant is the goose barnacle. Living in mats of abrasive intertwined clusters, these lustrous pearl-shelled crustaceans, accentuated with flame-red lips and feathery cirri nets, contrast sharply with their drab intertidal cousins. Before my film counter reached zero, I could feel the tug of the oncoming ebb tide warning us to ascend immediately.

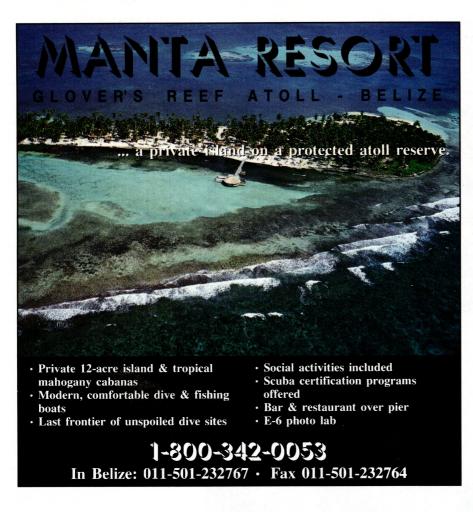
As terrific as Tremble Rock was, I was equally elated with my personal goal of completing 10 dives without

an ounce of ice water breaching the seals of my dry suit. In three prior trips to B.C., my experience with a *dry* suit was as much an oxymoron as *jumbo shrimp*! Previously, between dives my thermal underwear and booties hung by the *Clavella's* vin-



Above Left: Built in 1937, the 61-foot Clavella knows Canadian waters well. Left: The Rodney Dangerfield's of the sea, wolf eels are mighty ugly, but mostly docile. Above: Clusters of red goose barnacles are endemic only to the Nakwakto Rapids of B.C. Below: Red sea urchins and sea stars mingle among the fish eating tealia anemone.









Above: Like a purple flame across the sea floor, this nudibranch feeds on algaes and bryozoans.

tage diesel oil stove while I tried not to turn into a human popsicle.

That afternoon we visited Narrow's Wall and photographed a rare orange grunt sculpin. Its short (three-inch) stout body and long snout fit right in with B.C.'s bizarre fish community. Nearly every dive we observed fearless mottled red Irish lords posing among the plumose anemones, blue-spotted kelp greenlings hiding in the kelp, and yellow and black speckled China rockfish curiously peering at us as we drifted by.

Day five brought more unwelcome news from the 0600 Canadian Coast Guard weather report. Gale-force winds and 15-foot seas were forecasted so Captain John proceeded to hide the M/V Clavella among the numerous inlets of Queen Charlotte Strait. Although we had search valiantly, we had yet to sight a single orca and began to wonder if they too were monitoring the VHF and had headed to Baja for the winter.

Protected within picturesque inlets shielded by thick forests, we were able to make three dives on Rainbow Reef, Browning Wall and Seven Tree Island.

#### Under it all

Although each dive is spaced a few hours apart to coincide with slack tide at the next site, cold-water diving requires more time for gearing up and breaking down. Layering long-johns under thermal coveralls, talcum-powdering latex seals, waxing waterproof zippers and soaking external gear in hot water is not like slipping into a Speedo.

In the galley we curled up in sweats next to the stove and sipped hot cocoa laced with coffee. As we listened to Captain John's seafaring stories Crosby, Stills, Nash and Young harmonized "Wooden Ships" on the CD player: "Wooden ships on the water, very free and easy . . . easy, you know the way its

suppose to be." The romantic lyrics epitomized the *Clavella* as her gentle roll cradled us while 40-knot winds gusted just outside the wheelhouse doors. Built in 1937 by Boeing Aircraft Company for service as a Canadian government patrol boat, the *Clavella* has been Captain John's mistress for over 12 years—an affair confirmed by the brass sign hanging on the bulkhead, "If God had intended for boats to be made of fiberglass, He would have made fiberglass trees."

Friday morning brought rays of sunshine and the chance to dive shallow Hussar Bay where thousands of mating hooded nudibranchs covered the kelp and rocky subtidal terrain. These very unusual-looking mollusks reach out and net food with a large oval hood sporting numerous marginal tentacles. Their four to six paddle-shaped appendages (cerata) add additional bulk to their large three-to four-inch body. Their bright white color made the entire kelp forest appear to be blanketed in snow.

Although it dawned a bright sunny day, we knew not to get our hopes up. Too much solar heat could get the clouds excited beyond the safe-working level of their antiperspirant. Sure enough, late that afternoon on the way back to Port Hardy the sky began to sweat. So who decides its time to show up and say good-bye? A pod of Pacific whitesided dolphins! With cameras in hand, four of us jumped into the skiff and geared up in a flash. Like Navy SEALS we back-rolled into the water as soon as the props stopped turning. Our motions seemed frozen in time as the magnificent six- to seven-foot mammals rocketed by us at Mach 2. The last minutes of ambient daylight slipped away taking with them any photo opportunities. Somehow these black-backed, white-bellied cetaceans with gray body panels sensed the futility of our efforts. They playfully teased and frustrated us by swimming closer. If not for their beauty and innocence with which they entertained us, I, for one, was ready to lift the ban on "tuna packed with dolphin."

Although we were disappointed at not sighting a single orca, we all discovered that the true gem of B.C. is the vast kingdom of colorful invertebrates. For those fortunate enough to venture beneath British Columbia's seemingly hostile surface, each knows they have experienced the pinnacle of North American diving.

Franklin Viola lives in Roswell, GA, when he is not leading photo expeditions to exotic destinations. He is also a contributing editor for Scuba Times Magazine.

The author would like to thank Captain John deBoeck, Canadian Airlines, and especially, the participants who made this STM Expedition so enjoyable.

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nthony's Key Resort of Roatan, is celebrating its 25th Anniversary by offering up to one-third off its seven night dive package price during 1994 and 1995. The resort is also offering discounts on its dolphin swim and dolphin dive experience. For more information call (800) 227-3483 or (305) 858-5020.

**Aguila de Osa Inn,** formerly the El Caballito del Mar, of Drake Bay, Costa Rica, is under new management and has been completely renovated. For travel arrangements or for more information call (506) 232-7722 or (506) 296-2190.

Bayman Bay Club of Guanaja Island, in the Bay Islands chain off Honduras, has added a PDIC Instructor Development Program to its curriculum. Other programs available include an instructor's course, and a three week dive professional course which teaches advanced open water, rescue, dive supervisor and instructor. For more information call Terra Firma Adventures at (800) 524-1823 or (800) 358-DIVE.

**Dive-Inn** of Bonaire, Netherlands-Antilles, has opened a new scuba center in Puerto Cabello, Venezuela. Diving packages can be booked through Caradonna Caribbean Tours at (800) 328-2288 or (407) 774-9000.

International Expeditions Inc. is offering eight-day expeditionary diving trips to Belize and the Manta Resort next summer. The trips will explore sites around isolated Glovers's Reef Atoll, and are designed for experienced divers. For more information call Liz Bates at (800) 633-4734, extension 222.

The *Isla Mia*, a 75-foot live-aboard dive boat, will be hosting seminars on diving physiology, diet, exercise and decompression theory by Dr. Jolie Bookspan during the May 21 to 28, 1994, cruise in the Bay Island of Honduras. Dr. Bookspan is a diving researcher and author, and a former U.S. Navy physiologist. This workshop includes a certificate. NAUI continuing education credits are available. For reservations or for more information call (800) 874-7636.



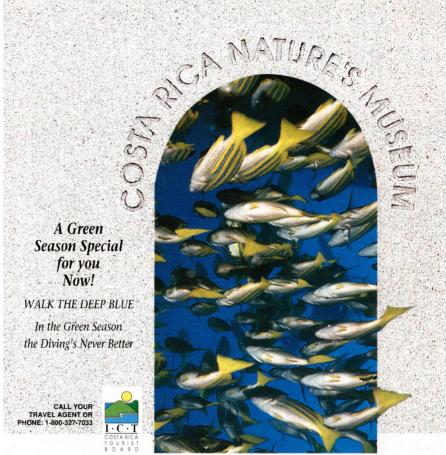
Micronesia Aquatics of Chuuk (formerly Truk) Lagoon is celebrating its 20th anniversary this year. Also, welcome aboard to Matt Emery as operations manager and Julie Predmore Emery as director of sales. For more information call Micronesia Safaris at (800) 545-9524 or (310) 546-9299.

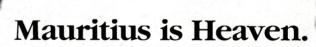
Quabbin Dives Ltd. of Grand Cayman has enlarged its retail and rental operations. As part of its expansion, Jim Crockett has joined the staff as general manager. Quabbin Dives has also acquired a 52-foot Hatteras boat, which is home for its new ExecuDives Program. In addition to great Cayman diving, ExecuDives receive a free video tape of one of their dives. For more information call (809) 949-5597.

Riding Rock Inn of San Salvador Island has expanded by 18 rooms, bringing the total accomodations to 42 rooms. The inn offers special dive packages which include hotel, taxes and gratutities, meals, airport transfers and three boat dives each day. Special charter flights are also available from Fort Lauderdale. For more information call (800) 272-1492 or (305) 359-8353.

Turneffe Flats a Belize shallow-water fishing resort has shifted into high gear to become a full service diving resort. The resort is located on Turneffe Islands Atoll, the largest of the three offshore atolls in Belize. Captain Hugh "Ho Ho" Parkey has joined the resort and will be offering advanced diving and specialty courses. Turneffe Flats has two 32-foot Oceanmaster diveboats which can accomodate six divers each. For travel arrangements or for more information call (800) 578-1304.

The Underwater Explorers Society of Freeport, Grand Bahama Island, is sponsoring breathhold diving legend, Jacques Mayol, to recreate his recordbreaking dive to 200 feet using a pair of dolphins instead of the weighted sled he used in 1966. Mayol is the subject of numerous books, articles, and documentaries. He is also a coauthor of the international film, *The Big Blue*, based on his life story. The date for their *Homo-Delphinus Free Dive* will be set later. For more information call (305) 359-2730. ▶





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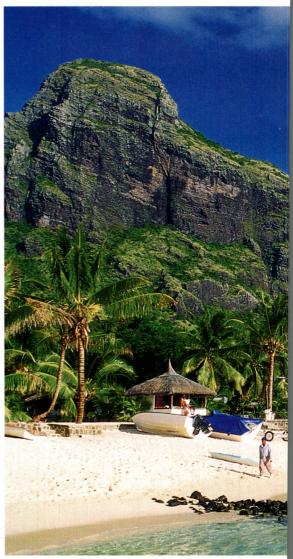
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he 747's wing dipped steeply as what seemed to be a near endless sea of cobalt blue rapidly became emerald then turquoise. Sheer volcanic escarpments covered in a velvet green emerged, each looking as if they had been carved by a master sculptor. Virgin white beaches bounded by tranquil coastal lagoons nearly encircled this ocean oasis. Soon it became obvious why Mark Twain proclaimed "that God modeled heaven after the island of Mauritius."

Mauritius, just east of Africa and Madagascar, basks amid the tepid waters of the Indian Ocean. The islands melting pot of culture dates back to early Dutch and Portuguese explorers, followed by the French where by it earned its name Isle De France. More recently colonized by the British, it now has a vast populous from India with mosques and shrines commonly found throughout the island.

Collectively, this potpourri of cultures

makes Mauritius the unique place it is. Clearly it is not just another exotic island in the sun, but an island nation, shaped by the richness of Asia, Europe and Africa, yet free and fully independent.

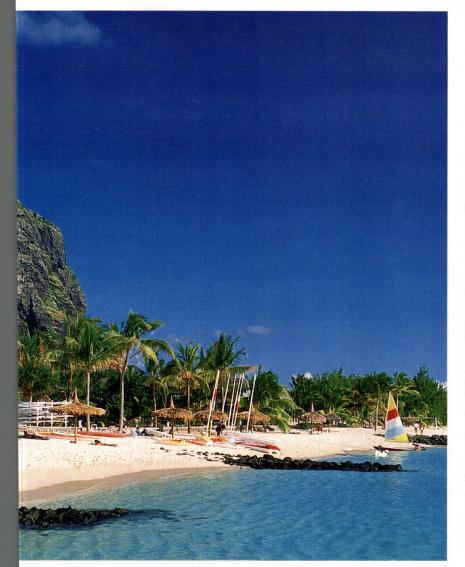
Mauritius' uniqueness doesn't stop with its culture. Both topside and underwater, visitors will encounter a profuse richness in life and natural beauty. From our host hostel, located on an 18th century historical estate known as Balaclava, it was possible to escape among the grounds ruins, waterfalls and lush tropical vegetation, or out from its beaches to Turtle Bay, the island's first national marine park. In this blue-green lagoon thick with hard corals, snorkelers can explore Mauritius' underwater world with some of the most bizarre fin fish populations on earth.

Directly offshore from Turtle Bay is a site known as Poison Reef. Divers will find this gradually sloping coral-covered bottom riddled with fissures and caves. The dive spot gets its name from the large population of stinging sea creatures which make these crevices their home. The distinguished populous of Poison Reef include overweight venomous lionfish,

and highly camouflaged and more dangerous stone fish. Besides these hazardous creatures this same area is blessed with enormous stands of anemones each with their own colony of clown, anemone or domino fish. Beyond the above, divers will also find sand eels and the mysterious ghost moray lurking amongst this fractured reef.

Just north of here, off Grand Bay lies one of Mauritius' most popular shallow dive sites. The Aquarium, although not original in name, is truly a horn of plenty when it comes to marine diversity. This flourishing reef system, in 30 to 60 feet of water, is said to contain over 200 species of marine life. However, the stars of the show here are two semi-tame giant morays. Similar in disposition to two love struck puppy dogs, these usually timid creatures interact closely with visiting

Out of Trous Aux Biches (pronounced Tour Beach) divers will be treated to one of Mauritius' best deep water dive sites known as Whale Rock. Huge basaltic boulders jut up from depths reaching 130plus feet. Many of these massive struc-





Far Left: Spotted moray eels are among the abundant sea life of Mauritius. Left: Beach scenes like this one are a testimony of why Europeans have flocked to this island off of Africa's southeastern shore. Above: Abundant rains keep Mauritius waterfalls flowing strong. All photos by Dale Sanders.

tures are well over 80 feet off the bottom riddled with gullies and passage ways, and covered with deep water gorgonians, vibrant red soft corals and green to red bush coral. Treated as a drift dive, divers travel from one precipice to the next, with visibility in the range of 120 feet.

Besides the undersea dramatic scenery, Mauritius offers a blunderbuss of inland natural beauty. An afternoon's drive through the constantly changing topography of the southwestern part of the island brought forth vistas of lush green valleys with dramatic waterfalls. One such double waterfall can be visited when traveling to the chamarel region. At the Colored Earths, visitors are treated to vivid rainbow-like hues created by iridescent volcanic ash.

At Grand Basin, a hindu holy shrine, wild monkeys flock to take advantage of the many offerings of food, flowers and incense left along the lake's shoreline by worshiping hindus to their god Shiva. Traveling from here through pine forests and chinese guavas, travelers should also stop to view the Black River Peak Waterfall which cascades into a secluded

valley, with tropic birds soaring nearby on updrafts.

While on this side of the island, consider donning a tank with one of the many dive operators around the area of Flic en Flac. An interesting Tug wreck is found here in 60 feet of water with a resident red grouper and lots of big eye sweepers.

A must dive for those adventuresome divers is an all day trip offered to the northern smaller islands off Mauritius. Here divers can experience the literal rush of diving in Shark Pit. Just next to an ancient volcanic magma shaft are pit-like pockets etched away by years of constant erosive surge. Divers enter these volcanic cavities and sink to their bowl-like bottoms whereupon sharks swim in a circular pattern above them. Exciting stuff! Especially when a big bull shark decides to join the smaller guys. Visibility here is usually 150 feet or more with lots of other schooling fish to keep each diver's interest peaked. While diving here, or while in transit by boat to and from this area, keep a close eye peeled for migrating whales or other pelagics, as it is quite common to see sailfish, tuna and

occasionally various species of whales.

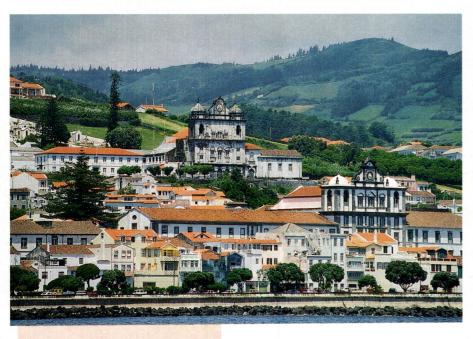
Reaching this island outpost might seem complicated at first, but after further inspection most traveling divers can reach the island of Mauritius with only one plane change in Europe. Compared to a recent trip to a small island in the Caribbean, which took three plane changes, Mauritius was a piece of cake, albeit longer. So, for those adventuresome dive travelers, find out for yourself why Mauritius has been the premier getaway location of Europeans for years.

With more than 3,000 logged dives around the world Dale Sanders is currently cataloging and writing a manuscript entitled Shipwrecks of the Florida Gulf Coast.

The author would like to thank Mr. Inder Sethi of Air Mauritius, Maritim Hotel, Mr. Jeremy Pask of Mauritius Department of Tourism, Denis and Hugues Vitry if /Blue Water Diving, the Desley Group, Caradonna Tours and Le Boss Charters.



# PORTUGUESE FIRE AND WATER



During July-August 1994, a Scuba Times Expedition will visit the Azores, primarily to swim with and photograph Sperm Whales. In the following article, expedition leader Doug Perrine reports on his exploratory trip during the summer of 1993. For information about joining the expedition, call STM at (800) 234-0060.

eneath my feet the very fabric of the earth was being stretched and torn, allowing the red hot liquid rock of the planet's interior to escape from the hardened shell which contains it. Thousands of feet below me, this lava was cooling as it contacted sea water and added more mass to the Mid-Ocean Ridge, already the greatest mountain range on earth at 36,000 miles long and 30,000 feet high. At only a few places along this great chain do the

peaks of the highest mountains break the surface of the ocean. The Azores Islands are nine such peaks, surrounded by the deep blue Atlantic. They are located about one third of the way from Lisbon to New York and belong to Portugal.

The landscapes of the Azores speak very clearly of their violent origins, recalling the song lyrics, "Fire and water have made you their daughter." As recently as 1957-8, a volcanic eruption redesigned the coastline of Faial Island,

driving 2,000 people from their homes. All of the beaches on the islands consist of black volcanic sand. From there the land slopes steeply upward to peaks up to 7,800 feet above sea level. Each island has one or more calderas or great volcanic craters, and several have hot springs, boiling muds, fumaroles or other

indicators of continuing thermal activity. Offshore, deep hydrothermal vents have recently been discovered, housing previously unknown forms of sea life.

The steep incline of the land continues beneath the water, creating favorable conditions for the deep upwellings which nourish the food web, culminating in such large pelagic animals as mantas, sharks, and whales. Yankee whalers began visiting the Azores in the 19th century, seeking sperm whales. According to the locals, this was the setting for the novel *Moby Dick*. The Azoreans, descended from Portuguese immigrants who came in the 15th century, signed on the whaling ships as boatsmen. As recently as 1984 they were still hunting Leviathan with hand-thrown harpoons from open rowboats.

As we began the inaugural trip of the first live-aboard in the islands the almost unbelievable clarity of the deep blue water seemed promising. Slipping into the water ahead of a squadron of jet-black dorsal fins on the first day, I soon found myself surrounded by pilot whales. One whale had a tiny calf so young that the fetal folds were clearly visible. A yearling swam on the cow's opposite side, nuzzling her continuously. They swam back and forth underneath me for several minutes, rolling upside down to look up at the visitor from another dimension. By the end of the next day I had seen bottlenose, common, spotted, and Risso's dolphins, oreas and, the quarry I sought, the mighty sperm whales. There was no repeat of the 1989 encounter when a team of researchers spent four hours filming a pod of 24 of the giants as they rested at the surface, socializing and rubbing against each other. Instead, we had brief sightings of whales spouting, swimming at the surface and fluking. We listened to their clicks on the hydrophones as they hunted. Nevertheless, we felt lucky to have seen one of the true marvels of the earth, a creature which very few humans have ever laid eyes on. More importantly, we had helped to institute a new sector in the Azorean economy; a nonlethal use of this great biological resource.

—Doug Perrine







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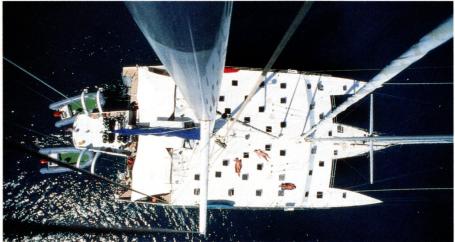
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# LIVE-ABOARD UPDATE



Trimarine by Michael Lawrence

# THE LIVE-ABOARD EXPERIENCE

t was 1988-89 when the live-aboard dive boat explosion really began to boom. In early 1989, *Scuba Times* published the first chart listing every live-aboard in the world. Even then, there were almost 50 of them out there. Aggressor already had six in their fleet, the 457-foot Ocean Spirit was just beginning its three-year ride/slide and the number of live-aboards had doubled in about two years.

In this issue, we're publishing the fourth such chart (on the next three pages). New locations, new boats in the same locations, upgraded vessels to replace old ships and a higher standard of comfort has been the trend. As of press time, by our estimation, there are 109 liveaboards plying the waters of the planet.

Keep in mind, this list doesn't include every dive boat in the world, it would take 1,000 pages for that, just what we have defined as *live-aboard* dive boats. To meet that criteria, the vessels must be able to do the following. They must be 60-feet long or longer; they must comfortably accommodate eight or more passengers; a dive master or instructor must be a crew member; an on-board compressor is a

must; unlimited diving must be offered and the boat must be able to take divers out for at least one week without having to resupply. All of the boats in the chart fit the criteria, plus some.

So, you want to book a trip? You've got a couple of choices. You can call the boat owners directly (some boats have their own booking office) or you can call a dive travel wholesaler who may represent dozens of boats. Wholesalers block rooms on various boats just like blocking seats on airplanes. If you can't get the dates you want with one wholesaler, another may have space for the dates you want. Going direct may be the answer to your vacation plans because the boat owners may have a broader schedule of dates than the wholesaler. To find out more about a vessel, either the direct representatives or the wholesalers will gladly send you information on a boat and the destination it dives.

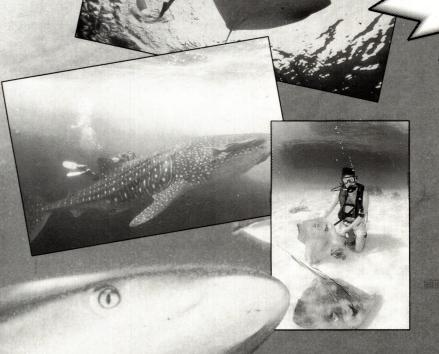
In the 90s, with so many choices and so much comfort, it's hard to go wrong. For the diver who wants a lot of rest and relaxation plus more food and diving than one person can take, the live-aboard experience is the way to go.

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Crown Islander 800-245-FINS	1		1	U		U	U	U	1	1	U	_	U	1	1	E	13	12	U	U	32	7	2	131	\$1149/7 days
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Easy Goin' 305-584-1561	ı	÷	1	N	1	N	ı	ı	1	N	N	N	N	N	N	N	2	5	4	0	8	3	1	65	\$1100/7 days
Good Time Diver II 305-584-9671			1		1	-	-	-	1		U		11111	U	1	U	2	3	U	U	10	3	1	60	\$775/7 days
21	1	_	1	U		U	U		1	<u>'</u>	U	E	U	E	E	E	3	7	U	U	20	5	1	100	
Gulf Stream Eagle 800-488-3483	1		U	U	U	U		U	1	U	U	U	U	U	U	U	3	6	U	U	23	6	2	65	\$1100/7 days
Morning Star 800-327-9600	1		ı	N	ı	N	ı	_	1	E	ı	E	ı	E	1	E	18	17	0	17	34	6	2	78	\$635/7 days
Nekton Pilot 800-899-6753	1		U	U	U	U	U	U	1	U	U	U	U	U	U	U	3	6	U	U	23	6	2	65	\$1350/6 days
Pirates Lady 800-327-9600	1		ı	N	1	N	ı		+	N	E	E	L	N	N	L	2	4	4	0	9	4	1		\$635/7 days
Sea Dragon 305-522-0161	1		U	U	U	U	U	U		U	U	U	U	U	U	U	3	6	U	U				65	varies
Sea Explorer 800-327-9600 Sea Fever 800-443-3837	1		1	N	1	N		E	1	E	ı	N	N	N	N	E	2	7	7	0	23 16	5	2	65 90	\$635/7 days
Sol-Mar III 800-426-0466	U	-	N	N	N	N	1	E	1	N	N	N	N	N	N	1	1	1	1	0	18	3	U	65	\$1199/7 days
BELIZE	,	Ė	1	- 14	IN.	М		-	COS (C)	14		14		14	100171			1	le divisi	U	10	J	J	00	\$1200/7days
Belize Aggressor II 800-348-2628	1	1	1	N	1	N	1	E	1	E	L	E	E	E	E	E	3	8	8	0	18	5	1	110	\$1495/7 days
Nave Dancer 800-9-DANCER	_	i	T.	N	1		-	1	1	E	E			_	E	_	1	10	0	10	20	8	1	120	\$1495/7 days \$1495/7 days
BRITISH COLUMBIA		·		,			HIAN MALES	Ė		-	Y. E	-		-						.0	20			120	y 140011 uays
Clavella 604-753-3751	N	N		N	1	N	F	L	i	L	N	N	U	N	E	E	U	5	5	U	10	3	1	61	\$995/6 days
Skeena 604-753-3751		N	10	N	ATT	N		N	1		N		N		N		3	3	2	1	10	2	2	67	\$995/6 days \$375/3 days
BRITISH VIRGIN ISLANDS				.,		"	100	"		.,		14		.,		.,	•	3	4	- '	10		•	01	φοτοίο days
Cuan Law 800-648-3393	1	1	1	N	1	N	1	E	1	L	E	E	E	E	E	E	10	10	0	10	20	7	2	105	\$1290/6 days
acht Promenade 809-494-3853	1	1	1	N	1	N	1	1	1	N	N	N	N	E	N	N	4	5	U	U	10	4	2	65	\$2000/7 days
CALIFORNIA/CHANNEL IS.	14				M								No.								1,187				
King Neptune 800-262-3483	N	N	ı	1	J.	1	1	N	E	E	E	E	E	E	E	E	3	4	4	1	30	3	2	65	\$425/4 days
CAYMAN ISLANDS	l h			Ė	100 A	1						-		_								-		-	, inc., duyo
Cayman Aggressor III *	1	T	i	N	1	N	1	E	1	E	L	E	E	E	E	E	3	8	8	0	18	5	1	110	\$1495/7 days
Myirma/Little Cayman Div. II 800-458-2722		i			1	-	1.75	U	L	-	U	E	U		U		7	5	U	U	10	4	2	90	1595/DIRECT ONLY
COLOMBIA										-				_		-		-			10	7		30	1000 DIRECT ONLY
Tropic Surveyor *	1	1	1	N	N	N	1	1	1	N	N	N	N	N	N	N	7	7	6	1	32	11	4	100	\$1755/6 days

		FE	AT	URE	S/	SEF	N	CE:	5				$\perp$	,	LC	ODC	SING	<del>}</del>	1			SPEC	IFIC	ATIO	
	1				7			m	de la	(a)	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			2	'	\	1				\ .	2		-	5 Z
Live-	.\.		$\setminus$	/ /	(ee	<sup>5</sup> / ,	Short	E-6 FIIII	O EO	/C @/	35 Video Rente	MM Carrier tal	N Pho	Certification tal	\ _	3/3	Total No. of Cac	No. of Uc Heads	No of Cab Heads	No of Passer with		No. of Tender Crew	, \	Q	Nucrade Patall Price
Aboards	2/6	3/4	GA/	2	2	ack	00/0	0	DI DI	E	8 /	Jan la	96/0	i all	3/8	o. of hongers	16	nare	Nate Ca	Pas	18	end	Ba	\	Age Aetall Price
of the World	10	130	130	130	13		Jac Jac	CUIS	/ces	LIPI	12 A	Street	A T	Struct	(8)	eng	8/2	OT S	南年	13 \ Se	3/9		2 / E	į	Day
of the world	in Cabi		NCR IN Car		TU in Co	g.\	Bar lalcon	0 / (	2 /			拉管	S /	如	1/2	8 /8	00/	No. of Us Heads	Private Heads	1	No. of Congers	(ew	Boat	<u> </u>	0,00
COSTA RICA																									
Okeanos Aggressor *	1	1	1	N	1	N	1	1	E	Ε	L	E	E	E	E	N	4	10	10	0	21	8	2	120	\$2495/10 days
Indersea Hunter *	1	1	1	N	1	N	E	E	L	E	N	N	N	N	N	N	5	6	2	4	14	6	2	90	\$2495/7 days
FIJI	443					<u> </u>		_								)	1		9.861		1000				
Matagi Princess 800-3 MATAGI	1	1	1	N	1	N	1	Е	1	Е	N	N	L	E		L	7	6	0	6	12	5	1	85	\$1750/7days
Mollie Dean II *	<u> </u>	<u>'</u>	U	N	U	N	U	U	U	E -	N	N	N	N	N	N	U	5	U	U	U	4	U	110	\$1750/6 days
Vai'a 800-348-9778	P	1		N	1	N	371.01	E	1	E	N	N	N	N	N	N	8	8	0	8	16	11	2	110	\$1980/6 days
FLORIDA KEYS/DRY TORTUGAS												_		_		_	100		S 1814					100	
<b>Extasea</b> 800-247-1913	1	1	1	U	<u> </u>	U	U	U	L	E	U	E -	U -	E -	E	E	4	6	U	U	28	2	U	100	\$450/3 days
sland Sun 305-451-3200	1	1	1	1		,	8	N	E	N	E	E	E	E	E	E	1	4	3	0	6	2	1	60	\$530/3 days
Spree 409-265-3366	1	1		N	1	N		E	1	N	N	N	N	N	N	N	3	U	N	N	34	6	1	100	\$625/5 days
GALAPAGOS	112						1			-	11	<b>b</b> 1	11	_	F	b!	10	7	11		10	0	•	00	\$100E/7 do
Albatros 800-336-8423	1	1 12	17.50	U	1	U	U	U		E	U	N	U	E	E	N	10	7	U	U	12	9	3	80	\$1995/7 days
Cachalote *	1	U	U	U	U	U	U	U		U	U	U	U	U	U	U	3	5	U	U	10	6	2	70	\$1775/7 days
Encantada *	U	U	U	U	U	U	U	U	1	U	U	U	U	U	U	U	2	5	U	U	10	6	2	72	\$1750/7 days
Eric *	U	U	1	N	1	N	U	U	U	N	N	N	N	N	N	N	U	U	U	10	20	10	U	83	\$1750/6 days
Flamingo *	U	U		N	1	N	U	U	U	N	N	N	N	N	N	N	U	U	U	10	20	10	U	83	\$1750/6 days
Galapagos Aggressor *	1	1		N		N		E	E	E	L	E	E	E	E	N	6	6	0	6	12	8	1	80	\$1995/7 days
ammer Law 800-648-3393/800-247-2925	1		1	N		N		E -		N	N	N	N	N	N	N	9	9	0	9	18	9	U	95	\$1950/8 days
Mistral II *	1		ı	N	N	N	E	E	N	N	N	N	N	N	N	N	5	6	1	5	12	6	2	66	\$2750/10 days
Nortada 813-637-9876 (FAX)	1	1	- 1	U		U	U	U		U	U	U	U	U	U	U	5	5	U	U	10	5	2	66	\$1750/7 days
Reina Silvia 303-494-8384	1		1	L		L	1	E		N	N	E		E	119	N	9	9	0	9	16	8	3	90	\$2700/9 days
Resting Cloud *	1	1		N	1	N	Ε	E	1	N	N	N	N	N	N	N	5	5	0	5	10	5	12	84	\$2000/8 days
Sea Cloud *	U	U	1	N	1	N	U	U	U	N	N	N	N	N	N	N	U	5	U	5	10	7	U	85	\$1850/6days
GRENADINES	gVi			-			E IAV	<u> </u>								_									
Aquanaut Explorer 800-327-8223	1		915	N	1	N	E	E	E	N	N	N	N	N	N	E _	N	20	0	20	40	16	4	165	
Tropical Sun 800-327-8223	1	1	1	N	1	N	E	E	E	N	N	N	N	N	N	Е	N	40	0	40	80	24	6	200	U
HAWAII		-						<u> </u>		_	A S	_		_											
Kona Aggressor II *	1	1	1	N	1	N			1	E	L	E	E	Е	E	E	5	5	0	5	10	5	1	80	\$1795/7 days
HONDURAN BAY ISLANDS	Per					-1	39																		
Bay Islands Aggressor II *		1	1		1		-	_	1		L	Е		Е	E		3	8	8	0	18	5	1	110	\$1495/7 days
Isla Mia 800-874-7636	L	1	1	N	1	N	1	E	L	Е	N	Е	N	E	L	N	3	7	7	0	14	5	2	75	\$1095/6 days
NDONESIA			145			\$																			
Cehili 800-525-3833	-1	1	1	N	1	N	- 1	- E	1	E	E	E	E	E	E		12	10	0	10	24	22	4	148	\$2162/9 days
Serenade *		U	1		1	1	U	U	E	U	U	U	U	U	U		4	6	U	U	12	8	2	80	\$1295/7 days
Tropical Princess *	1	1	1	U	1	U	U	U	1	E	U	U	U	U	U	U	6	9	U	U	17	8	2	100	\$1960/7 days
MALAYSIA			FEEVE			_					167														
Sprit of Borneo *	I	1	1	N	1	N	1	E	N	L	N	N	N	N	N	N	11	9	8	1	18	12	2	120	\$2970/9 days
MALDIVES			New York					_																	
Keema *	U	1	1	U	1	U	U	U	1	U	U	U	U	U	U	U	6	6	U	U	12	5	2	80	\$3250/10 days
MEXICO/BAJA	RE		199						W		No.														
Baja Treasure *	1	T	1	N	1	N		E	U	E	N	N	N	_	N	-	U	9	0	9	18	8	2	U	\$1320/6 days
Copper Sky 800-843-6967	1/25	N	1	N	1	N	1	L	L		N		N	N	N		0	6	6	0	12	6	2	88	\$1495/7 days
Don Jose 800-843-6967	N	N	-1	N	1	N	1		L		N	N	N	N	N		0	7	7	0	16	6	2	80	\$1495/7 days
Octopus 800-344-8580	1	1	1	U	1		U	U	1	E	U	Ε	U	E	E	_	U	4	U	U	8	U.	0	65	\$1495/7 days
Quintana Roo 800-344-8580	U	U	U	U	U	U	U	U	E	U	U	U	U	E	U	E	1	1	U	U	8	4	1	65	\$1050/7 days
PALAU		¥.				1			Va																
Ocean Hunter *	- 1	1	1	N	N	N	1	E	L	N	N	N	N	N	L	N	2	3	2	1 _	8	3	1	60	\$1895/7 days
Palau Aggressor *	1	1	1	N	1	N	1	E	1	E	L	Ε	E	E	E	Е	7	7	0	7	14	5	2	110	\$1995/7 days
PAPUA NEW GUINEA		j				ř					180														
Chertan 011-617-061-1167	N	ı	I	١	1	ı	1	E	1	N	N	N	N	N	N	N	2	6	6	0	10	7	1	60	\$2500/10 days
Febrina *		1	1	U	1	U	U	U	1	E	U	U	U	U	U	U	4	6	U	U	12	6	1	72	\$1960/7 days

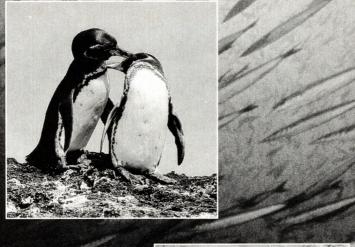
		FE	AT	URI	ES/	SEF	SVI	CE	S					\	L	OD	GING	3				SPEC	CIFIC	CATIO	NS
Live-	P 2				F188	5	Sho	E-6 F	Video Evi	Video Co	IM Vide	ST MAN	LIM Pho	Certific		100	Total	S. No.	No. o	No. of		No.01		:	Ne rage
Aboards of the World	C in Calon	CR in Sain	VCR in US	The Capit	TV in Calon	ARCKSI V. Abin	Bar (alconings	Exculo	o Eum Processions	Equipling	Video Rem	Instruction	IN Photographical Resident	to Instruction to	ation Coule	o of sengers	Total No. of Oc.	shared Head	No of Carleadins W	No. of Passonins with	No. o.	No. of Tender	Boat Boats	Length	Nuerage Retail Price
PAPUA NEW GUINEA	1	/0 /	144	\_	1-	17			107	100		\_				. \		(0, /	0,		7 0, 1		0.	1-1	
Golden Dawn *	ı	1	1	N		U	E	Е	N	E	N	N	N	N	N	N	4	5	5	0	10	5	1	80	\$2750/10 days
Melanesian Discoverer 310-785-0370	1	1		U		U	U	U	1	1	U	1	U	1		1	U	21	U	U	42	18	3	117	\$2450/7 days
Telita *	100	1		N		N	1	E	U	N	N	N		N	N	N	2	5	5	0	10	U	U	65	\$2970/10 days
Tiata *		ī	71	N	1	N	1	Е	N	N	N	N		N	L	N	2	5	5	0	10	U	1	75	\$2970/10 days
PHILIPPINES	W.	_	PA						WIN		111				Ť		, and								
Nautika *	1	1	U	N	U	N	U	U	N	N	N	N	N	N	N	N	U	U	U	0	16	7	2	100	\$1540/6days
Tristar *		i	4	U	1	U	U	1	U	U	U	U		U	U		6	10	U	U	20	20	2	120	\$2495/10 days
POHNPEI			700		215		27					_						10	156574		-		_	120	\$2493/10 days
Lieulele the Pohnpei *	U	1	U	U	U	U	11	U	1	N	11	N	U	_	N	N	3	7	U	U	15	4	1	78	U
RED SEA		H	-	_		-	0	-		-,1	0	-	,	<u>'</u>		"	3	-	-	J	13	-		70	
Barakuda *	11	U	1	U		U	U	U	E	U	U	U	U	U	U		8	8	U	U	16	0		02	U
Colona IV *	ı		1	N	218	N		E	E				_		_		2		-		16	8	1	93	
Crissy II *	1	-		U		U	U		U	N	N	N	N	N	N	N		4	4	0	10	4	1	75	\$1695/7 days
			-	_	-	-		U		U		U		U	U	U	4	7	U	U	14	5	1	66	\$1195/7 days
Fantasea II *	1	•	N	L	#1 h	L		-	-	N	N	Ε	1	E	1	_	7	7	0	7	16	8	3	115	\$3000/10 days
Ghazala I *	1		1	U	1	U	U	U	E	Ε	U	U	U	Е	U	U	4	6	U	U	16	5	U	82	U
Gina *	U	U	1	U	1	U	U	U	E	U	U	U	U	U		L	3	5	U	U	10	5	1	60.5	U
Lady Jenny *	1	1	1	U	1	U	U	U	U	L	U	U	U	1	L	U	.5	7	U	U	16	6	2	96	\$1100/7 days
Manta Ray 011-972-7-335067	1	1	1	N	1	N	1	E	N	N	N	Е	N	Е	L	E	2	3	2	1	8	4	1	62	\$1149/7 days
Number One 800-322-3577	ı	ŀ	1	N	1	N	1	E	N	N	N	N	N	N	N	N	5	10	10	0	20	10	2	110	\$1795/7 days
Perla I *	1	1	1	U	1	U	U	U	U	U	U	1	U	1	U	U	4	7	U	U	14	6	1	66	\$1190/7 days
Sea Surveyor 011-972-7-335067	1	ı	-1	N	1	N	1	E	N	E	E	E	E	E	E	E	7	9	8	1	18	8	2	114	\$1330/7 days
Tamara I *	1	1	1	U	ı	U	U	U	E	1	U	U	U	U	L	L	3	6	U	U	12	6	2	75	\$1290/7 days
RUSSIA		<u> </u>							ME					1											
ACFES 011-423-224-54911 (FAX)	1	1	1	U	1	U	U	U	E	U	U	U	U	E	U	U	2	6	U	U	12	5	1	96	\$1050/7 days
SABA/ST. KITTS/ST. MARTIN					p (e)				M																
Caribbean Explorer 800-322-3577	1	1	1	N	1	N	1	1	E	Ε	E	E	E	Ε	E	N	3	9	9	0	18	6	1	106	\$1395/7 days
SOLOMON ISLANDS			40																				N.		
Bilikiki *	N	1	11	N	1	N	E	E	1	E	N	N	N	E	1	E	0	10	0	10	20	12	2	125	\$2960/10 days
Kirio *	1	1	1	N	1	N	E	Ε	1	N	N	N	N	N	N	E	2	3	3	0	10	7	1	68	\$1295/7 days
Spirit of Solomons *	1	ı	1	N	L	N	Е	Е	ı	Е	E	L	1	Е	1	E	4	13	6	7	26	12	2	125	\$2960/10 days
TEXAS FLOWER GARDENS	EN				-6	4	1978	1						1	137										
Fling 409-265-3366	ı	1	i	N	i	N	1	Е	N	N	N	N	N	N	N	N	3	1	0	0	34	6	1	100	\$495/4 days
THAILAND		l			Vf		YIP.		Di.								1593		14/34						
Crescent *	U	U	1	U	1	U	U	U	1	U	U	U	U	Ε	E	E	3	4	U	U	10	4	1	60	\$900/7 days
Fantasea *	1	1	1	N	1	N	1	E	1	E	N	E		Е	E	E	3	7	7	0	16	7	1	98	\$1120/7 days
Sai Mai II *	1	ī	1	U	1	U	U	U	E	E	U	E	U	E	E	E	2	4	U	U	8	6	1	70	\$1120/7 days
Scuba Explorer 011-667-638-1625	1	-	1	N	1	N		E	1	N	N	N	E		E		3	6	5	1	14	6	1	70	\$480/3 days
TRUK LAGOON			1 11				NY.	Ė				Ė		Ė		_			100			Ė			7.50.0 40.10
Thorfinn *		ı	1	N	1	N	1	E	1	Ε	N	E	E	E	E	L	9	13	10	3	26	20	4	170	\$1700/7 days
Truk Aggressor *	1	i	1	N	1	N		E	1	E	L	E	E		E		10	10	0	10	20	4	1	120	\$1895/7 days
TURKS AND CAICOS			188	-				Ē	D. W.	÷	7.84	-		-		-	8437				2.0	_		120	\$1000/1 days
Aguanaut *	1	1	1	N	N	N	1	E	L	N	N	N	N	N	N	N	1	2	2	0	4	2	1	AE	\$1205/6 dov-
Sea Dancer 800-9-DANCER	U		+	U	ı	U	-	U	E	E	U	E	U	_		E	10	9	U	U	10-300 Tem	7	C12-17 T102-	45	\$1395/6 days
	-	_	-			_		_	WEU .	_			1000						12 22 1		18	6	2	110	\$1395/7 days
Turks and Caicos Aggressor * U.S. VIRGIN ISLANDS	1	-	1	N	1	N		E	1	E	L	E	E	E	E	E	3	7	7	0	16	5	1	100	\$1495/7 days
					MAN AND AND AND AND AND AND AND AND AND A	2				-		-	716	_		_	La		1 1/2			-			
Angelica   505-384-3149		- 1	-	1	1		1	N	1	U	U	- 1	U	Ε	U	E	6	6	2	4	12	10	2	110	\$2000/7 days

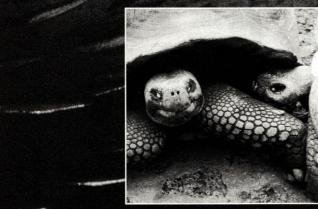
Adventure Express 800-443-0799 Adventure Express 800-348-36/99
Aggressor Fleet 800-348-2628
Caradonna Caribe Tours 800-328-2288
Caribbean Adventures 800-934-DIVE
Fantasia Destinations 800-336-3483
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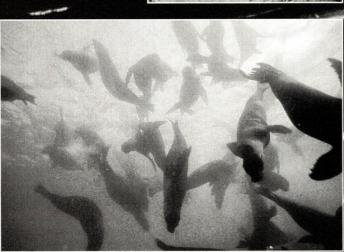
I = Included E = Extra Cost L = Limited U = Information Unavailable N = Not Offered

chart was given by boat chart was given by boat owners or representatives. While Scuba Times Magazine staffers have made every effort to assure that the chart is accurate, some inconsistencies may occur. Contact boat representatives directly, if you have any questions or would like further information.









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# HEAD TO HEAD REVIEW

# BOOSTING YOUR BRAIN POWER

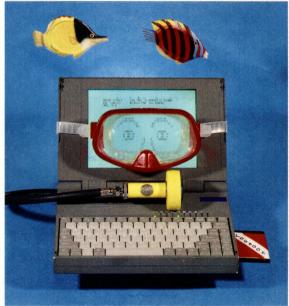
omputers have always given me headaches. First it was Pong, that ping pong video game that seemed like an exercise in futility. In college it was a program called Fortran that really turned me against computers. If a single comma, period or colon was omitted the entire program failed to run. In fact, as I think back, it was probably

the frustration of Fortran that directed me toward the Caribbean where I could escape the high-tech world and enjoy the simplicity of scuba's mechanical world.

But, before my fins even got wet, I ran into two divers flaunting the sport's newest toy—diving computers. Although these divers argued that the electronic brain was the wave of the future, some of us remembered an earlier decompression meter which earned the nickname Bend-O-Matic. With help from others on the dive, we voted not to allow computer diving on our boat. It made us proud to shoulder the responsibility of protecting two disillusioned divers from bending themselves and ruining "our" vacations.

These days, I get along with computers a lot better. I carry one of those laptops just about everywhere I go. And, every time I step into the water there's one dive computer strapped next to my pressure gauge, one in the pocket of my BC and one more in my gear bag.

So have I come to realize the usefulness of dive computers? You bet. Do I



By Franklin Viol

understand how they analyze the absorption rate of different "theoretical" tissue groups at various depths? Yes, multi-level diving (spending only a fraction of the dive at the greatest depth and swimming progressively shallower throughout the dive) can be illustrated and even performed (but not as conservatively as dive computers) on simple laminated plastic dive tables. Have I entrusted my butt to their nitrogen Pong game of excited electrons racing through a maze of circuit boards? Not totally.

I am a mechanical sprocket-turning-ashaft kind of diver. I use two computers at once as insurance against Murphy's Law, "What can go wrong will go wrong." Or in diver's speak, "Salt water and electronics!" The bottom line for me as a professional underwater photographer is to safely maximize my dive time on each repetitive dive.

Today, many instructors are introducing dive computers to students on the first day of pool work. These instruments have become a standard piece

of diving equipment for many of us who work and play beneath the ocean. Some even argue dive tables may some day be abandoned and that no one should venture beneath the seas without a diving computer (see article page 72).

Yet, simply buying an electronic instrument to keep track of your up-anddown dive profiles does not relieve you from using your "human" computer. The data translated by dive computers was conceived to assist "intelligent beings" to safely enjoy more dive time. While a cetain margin of safety is built into most computers, the dive computers assume they are used by divers who exercise regularly, eat a balanced diet, are not grossly overweight, get plenty of rest and do not support the tobacco/alcohol industry. In addition, computer profiles believe divers consume plenty of water before and after each dive to prevent a major cause of decompression sickness dehydration. Their non-emotional circuit boards do not provide allowance for stress created by delayed plane flights, lost luggage or rough sea conditions.

The recent advances in diving computers has brought the sport further into the 21st century than any other piece of scuba equipment excluding the demand-regulator. Yet, the sheer number of choices has made finding the right computer for your diving patterns difficult.

The key is understanding how the computer you buy works. It's also critical to know that different computers calculate information in a variety of ways. For example, one computer may use an ascent rate of 33 feet while your buddy's computer uses 60 feet. Knowing your computer and using only that data will help to keep you out of trouble.

In order to help you choose the right computer for your diving, we've compiled this comprehensive computer chart (pgs 48-49). So take the comparison chart into your local dive shop and apply your own Ross Perot analysis (touch it, taste it, smell it, squeeze it) to determine which dive computer best fits your diving needs. Whether your decision is based on a particular mathematical model for calculating repetitive dives or simply that its hose mounting boot also comes in pink (all three of mine do), be sure to activate your internal "hard-drive" as a back-up!

Franklin Viola is equipment editor and a photo expedition leader for Scuba Times Magazine.

Thanks to Brenda Tillman of Sea Sports in Roswell, GA, for her invaluable assistance and to the manufacturers who supplied information about computers.



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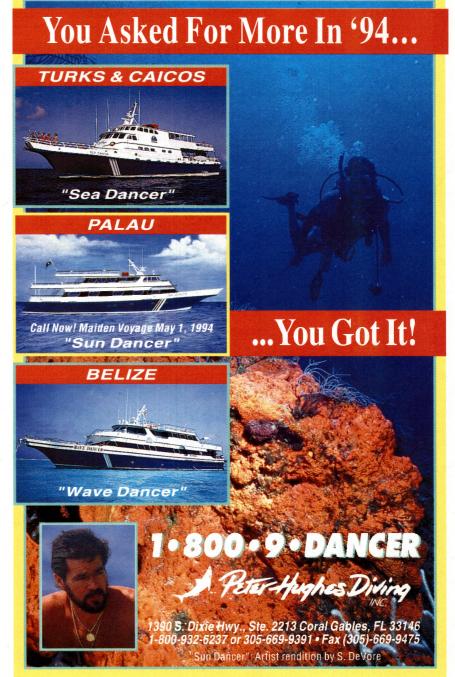
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		BEUCH	AT USA	DACOR	CORP	DIVE RITE	OCEAN EDGE	OCE	ANIC
(	CHARTING	ALADIN PRO	ALADIN	OMNI	OMNI PRO	THE BRIDGE	COMPUTEK II	DATAMAX SPORT	DATAMAX PRO
	Decompression Model Used <sup>1</sup>	В	В	RP data	RP data	В	H2	RP data	RP data
	# of Tissue Compartments <sup>2</sup>	6	6	12	12	9	8	12	12
	Method of Activation (Manual/Automatic)	A/M	A/M	М	М	A / M	М	М	М
ES	Mounting Method (Wrist/Hose/Console)	W/H/C	W/H/C	W/H/C	С	W	Н	W/H/C	С
GENERAL FEATURES	Air Integrated / Pressure Gauge	no	no	no	yes	no	yes	no	yes
FEA	Compensates For Alltitude	yes	yes	yes	yes	yes	yes	yes	yes
AL.	Battery Life	5 years	5 years	100+ dives	100+ dives	2+ years	2000 hrs	100+ dives	100+ dives
KER	Battery Changing: Owner?Shop?Mfr?	shop/Mfr	shop/mfr	owner	owner	mfr	owner	owner	owner
GEI	Battery Cost	\$30	\$30	\$3	\$4 - \$6	NA	\$6	\$4 - \$6	\$4 - \$6
	Nitrox Compatible	no	no	no	no	yes	no	no	no
	Interfaces w/Personal Computer	no	no	no	no	yes	no	no	no
	Recommended Ascent Rate	33'/min	33'/min	variable	variable	30 ft/min	30 ft/min	variable	variable
Щ.	Maximum Depth / Depth Rating	330 feet	330 feet	249 feet	249 feet	300 feet	249 feet	249 feet	249 feet
E E	Do Not Fly Time	yes	yes	yes	yes	no	no	yes	yes
AFTER DIVE DISPLAY	Surface Interval Time	yes	yes	yes	yes	yes	yes	yes	yes
A _	Dive Planning Mode / Scrolling <sup>3</sup>	yes	yes	yes	yes	yes	yes	yes	yes
	Ascending Too Fast Warning <sup>4</sup>	A / V	Visual	Visual	Visual	A / V	Visual	Visual	A / V
	Ascend for Decompression Warning 5	A / V	Visual	Visual	Visual	A / V	Visual	Visual	A / V
*	Bottom Time	yes	yes	yes	yes	yes	yes	yes	yes
SPLAY	Current Depth	yes	yes	yes	yes	yes	yes	yes	yes
DIS .	Decompression Instructions	yes	yes	yes	yes	yes	yes	yes	yes
DIVE DIS	Low Battery Indicator	yes	yes	yes	yes	yes	yes	yes	yes
NG	Maximum Depth	yes	yes	yes	yes	yes	yes	yes	yes
DURING	Tank P.S.I.	no	no	no	yes	no	yes	no	yes
	Water Temperature	no	no	yes	yes	yes	yes	yes	yes
	# of Dives stored	9	9	9	9	6	9	9	9
8	Suggested Price (based on wrist unit)	\$599	\$399	\$625	\$795	\$895	\$730	\$385	\$699

This Chart was filled out by the respective manufacturers. It details the management of nitrogen absorption by the individual diving computers. Included are the features (or lack of them) which may make one computer more suitable to your style of diving than another. This is not *Consumer Reports*! Keep you eyes open, your hands firmly on your wallet, feet in your fins and test dive the model which most interests you before buying it.

# LEGEND

МН	MODIFIED HALDANIAN
В	BUHLMANN
MB	MODIFIED BUHLMANN
HN	HAHN
H2	HALDANE/HAHN
RP-d	Based on ROGERS/POWELL data
CS	COMING SOON
W/H/C	WRIST/HOSE/CONSOLE

- 1. Decompression Model Used—all bottom times, whether calculated using tables or computers, are based on tests by various scientists. The work of J. S. Haldane in England in 1908 is credited as the beginning of decompression theory and was used to create the U.S. Navy tables. Today's "decompression models" used to program computers are generally modified forms of Haldane's theories which have been updated from other testing.
- 2. # of Tissue Compartments—when programing computers, scientists calculate the rate nitrogen is absorbed

OR	CA	PARKWAY	SCUBA PRO	SEA	QUEST	SHER	WOOD		U.S. DIVER	S
PHOENIX	MARATHON	8027 WRIST MOUNT	DC-11	SOLUTION	COMPANION	SENTRY	SOURCE	MONITOR 1	MONITOR 2	SCAN 4
МН	MH	В	Hn	МН	MH	MH	RP data	MB	MB	RP data
12	12	6	6	9	8	12	12	6	6	12
Α	М	Α	Α	Α	Α	M/A	M	Α	Α	М
Н	W/H/C	W/H/C	W/C	W/H/C	W/H/C	W/H	W/H/C	Н	H/C	С
yes	no	no	no	no	no	yes	no	no	no	yes
yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
500+ hours	7,000+ hrs	300 dives	2000+ hrs	~200 dives	~500 dives	220 hrs	100+ dives	3 - 5 yrs	3 - 5 yrs	100+ dives
owner	owner	shop	mfr	shop/mfr	shop/mfr	owner	owner	shop/mfr	shop/mfr	owner
\$12	\$20	\$60	\$75	\$30	\$40	\$6 - \$10	\$4 - \$6	\$45	\$45	\$4 - \$6
no *	no	no	no	no	no	no	no	no	no	no
yes	no	no -	no	yes	no	optional	no cs	no	no	no
variable	variable	33 ft/min	variable	33 ft/min	33 ft/min	variable	variable	33 ft/min	33 ft/min	variable
300 feet	200 feet	330 feet	302 feet	325 feet	295 feet	250 feet	249 feet	330 feet	330 feet	249 feet
yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
A / V	Visual	A / V	Visual	Visual	Visual	A / V	Visual	Visual	A / V	A / V
Visual	Visual	A / V	Visual	Visual	Visual	A/V	no	Visual	A / V	A / V
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
yes	yes	yes	yes	yes	limited	yes	yes	yes	yes	yes
yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
yes	no	no	no	no	no	yes	no	no	no	yes
yes	no	yes	yes	yes	yes	yes	yes	no	no	no
3+	1	9	3+	8 hours	5	144	9	9	9	9
\$700	\$300	\$638	\$420	\$560	\$360	\$850	\$430	\$470	\$670	\$720

# LEGEND

and released in the body based on theoretical tissues. The human body doesn't actually have 6, 9, or 12 tissue compartments, like we have two eyes or ten fingers. However, scientists assign number to tissue compartments in order to divide them into "fast" or "slow" tissues. Fast tissues absorb and release nitrogen faster (with greater depth) and vice versa with slow tissues (with shallow depths). This is key data for a computer to calculate a multilevel computer profile.

3. Dive Planning Mode/Scrolling—during surface interval,

computers scroll through the amount of time divers can spend at certain depths. Most scrolling begins at 30 feet and scrolls at 10-foot intervals to 130 or 150 feet.

- 4. Ascending Too Fast Warning—if a diver ascends faster than the Recommended Ascent Rate most computers warn the diver to slow down either by an audible beep or flashing light.
- **5. Decompression Warning**—if a diver exceeds the no-decompression limits of the computer, an audible or visual

warning will instruct the diver to ascend.

- **6. Decompression Instructions**—after giving a decompression warning, the computer will display instructions for making it safely back to the surface, by giving a "ceiling" depth and time limits at that depth.
- \* Orca offers a separate Pheonix computer which is specifically made for Nitrox-1 diving. However, the standard Phoenix should never be used with nitrox.

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Lean, mean, cunning, ruthless and sleek, great white sharks are kings of the sea. Marty Snyderman caught this monster from the protection of a cage in southern Australia.

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# IN THE WILD

# SHARK EXPEDITIONS:

# WHERE DIVERS GO TO SWIM WITH SHARKS



hark! The stuff of legend, myth, and sea lore. Sharks are many people's worst nightmare. But for some divers, the thought of observing and filming sharks from close range is an irresistible attraction.

It is one thing to be awed by sharks in an aquarium or on television and quite another to gain appreciation from personal encounters in the wild.

Years ago shark diving was left to the experts. Today,

part in determining how the various trips are run. Clearly there are more shark diving expeditions than can possibly be covered in the space allotted for this piece, so I am simply going to share my thoughts concerning some of the trips with which I have personal experience.

## Blue Sharks and Mako Sharks: Southern California

I'll never forget the first time I went diving specifically to see

> a shark. It was almost 20 years ago, and that day greatly altered my diving career. I was diving with Howard Hall and Larry Cochrane, a couple of friends whose level of shark expertise was, like mine, founded more in enthusiasm than experience. We built our own cage, bought some bait and headed out to sea, hoping to attract blue sharks, the most common of the open ocean sharks in southern California.

On the first dive I drew the short straw and had to wait on the boat while one blue shark slowly circled the cage. Finally it was my turn, and as I suited up, more and more sharks began to show up. There were at least eight missile shaped silhouettes excitedly cruising around the boat. I had a knot in the pit of my stomach as I jumped into the water and made my way to the shark cage, but I felt so alive and involved.

An aspect of blue shark expeditions that sets these adventures apart from others is that the diving takes place in the open sea, often completely out of sight of land, in a cage suspended behind a boat. Despite the fact that blue sharks are oceanic nomads, they are not deep water animals. Blues spend the vast majority of their lives in the top several hundred feet of water. With some luck and a bit of bait, blue sharks can be brought right to the surface.

Several operators run blue shark trips, and the divers remain inside of a shark cage during the dive. The dive masters often swim outside as they bait the sharks up to the cage for the excitement of the divers inside. Once baited, blue sharks show little fear and readily approach a cage full of divers.

Bob Cranston, the owner of San Diego Shark Diving Expeditions, utilizes a stainless steel sharksuit as part of his show. The suit allows Bob to devote all of his attention to the safety of his clientele as he escorts them to and from the cage, and it is always a highlight of everyone else's day to see a big blue chomp down on Bob as he demonstrates the suit's effectiveness.

For most divers the excitement intensifies considerably if a make shark shows up, not an uncommon occurrence. In many respects make sharks are everything that blue sharks are not. Makes have stocky bodies, a distinctly pointed snout, and rows of



however, things are far different. Adventurous sport divers are joining shark diving expeditions all over the world to enjoy encounters that are up close and personal. And doing so is easier than you might suspect.

A variety of factors such as the species of sharks being pursued, the trip length, the location, the costs involved, and whether the divers remain inside of a protective shark cage or swim with the sharks, all play a

BY MARTY SNYDERMAN exposed, razor sharp teeth that appear to be so large that they don't fit into the shark's mouth.

If you just want to photograph the sharks, with no divers in your shot, try the 20mm or the 28mm lens, and if you want a shot of Bob demonstrating the shark suit, use a 15mm. The advantage of a 28mm lens is that the sharks are likely to fill your photographic frame, but the narrow depth-offield can prove to be a problem. Despite the fact that the cages usually drift only 10 to 15 feet below the surface, a strobe will help make the sharks stand out against the blue water background.

## **Great White Sharks:** South Australia

Though not every diver's cup of tea, for some a dive with a great white shark is viewed as diving's ultimate thrill. Most sport divers who want to have a chance to see a great white in the wild travel to the temperate seas of South Australia.

If you choose to join a white shark expedition, it is wise to bring along a very positive attitude and a lot of patience. No matter what the trip costs (some are in the \$10,000 range), there are still no guarantees of an encounter. Careful here, don't misinterpret my comment. Of all the dive expedition leaders I have ever joined, Rodney Fox, who was attacked by a great white and lived to tell about it. has an excellent track record (sharks on all but one trip in more than 15 years).

Sometimes I have seen sharks from day one, and on other trips I have had to sit and bait and let nature take its course. But what a sight it is when you finally hit pay dirt! Large and obviously powerful, white sharks are magnificent creatures. They have an aura about them that says "This is my ocean."

On my first great white shark dive, I was working as a cameraman on a Wild Kingdom film, and while I was hired to film the sharks in action, during my first few minutes in the cage all I could do was watch.

I vividly remember looking through my viewfinder and

watching the shark move in on the bait with mouth agape, jaws protruding, and rows of two inch long, razor sharp teeth fully exposed. Few scenes in all of nature are as dramatic.

While most still photographers seek the toothy shots, there is another, far different, set of images to

photographer in you demands that you move ahead to get a little closer to the school. You swim forward and only moments after you exhale, the entire school disappears into the distance. Suddenly there are no sharks in sight, and you are left to wonder if the scene was real or imagined.



capture. White sharks are stunning animals, creatures that can look as handsome as they are big and powerful. Photographers normally want the sun at their back, but photographing white sharks while shooting directly into the sun in either early morning or late afternoon light can yield some extremely powerful images as shimmering shafts of sunlight add considerable impact to the

## Hammerhead Sharks: Coco Island

Imagine looking up and seeing the water above you completely filled with the silhouetted shapes of big scalloped hammerhead sharks. There are dozens upon dozens of sharks, far more than you can count. Your knees get a little weak, and your heart begins to race. You have not baited the sharks, but you are not in a shark cage either. The sharks just showed up as you rounded the point and headed into the current.

Despite a natural temptation to make deals with the devil so you can surface safely, the

Schools of scalloped hammerheads are commonly encountered in the waters surrounding the Galapagos Islands, in Mexico's Sea of Cortez, and in a number of areas in the South Pacific, but the majority of my most memorable hammerhead dives have been at Coco Island, Costa Rica, Once at Coco I swam under a school that I estimated to have as many as 600 scalloped hammerheads. Most were 7 to 10 feet long. Chills of excitement shot up and down my spine. I got several nice photographs on that dive, but none even came close to capturing the power of the scene.

Photographing scalloped hammerheads is quite a challenge. These sharks do not readily come to bait, and they tend to spook rather easily at the sound of scuba exhaust bubbles. In my experience, the best method for getting close to these hammerheads is to find an area where the sharks are being seen, and hide in the rocks at the most exposed and current swept portion of the reef. Be patient, and wait for the sharks to come to you.

Left: Sleek and beautiful, this blue shark cruises the surface of offshore California.

Above: No shark is as feared and aggressive at the great white. With the protective shield of the cage, Snyderman catches this white grabbing some fast food and a side order of rope to go.

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When you see the school moving toward the reef, be still, hold your breath, and do not ascend. There will probably be a great temptation to swim toward the sharks, but odds are if you do swim toward them, you will exhale and scare the entire school away within seconds. While my wide angle film of choice is Kodachrome 64, the diving at Coco is often 60 to 100 feet deep, and if it is overcast I sometimes find that I prefer to use some Fuji 100 or Ektachrome 100.

If you are really fortunate, the hammerheads will swarm the reef and swim around you despite the noise from your bubbles. It doesn't happen often, but it does happen. Often when the sharks come to the reef, they visit cleaning stations operated by king angelfish. If you keep a sharp eye, you might have a good chance to get close enough to a shark that is being cleaned to light the scene with a strobe.

A number of other species of sharks are also commonly seen at Coco. These include whitetip reef sharks, silky sharks, silvertips, and whale sharks. During the day whitetips that are resting on the sea floor are often easy to approach, and I have found it possible to take full face shots of these animals with my Nikonos RS system while using a 50mm lens. Facial shots of sharks are not easy to catch, and this opportunity is not one that avid photographers should underestimate.

### Whale Sharks

Attaining proportions of more than 40 feet in length and weighing between 30,000 and 50,000 pounds, whale sharks are the largest fish in the world. One time when I was filming a whale shark in Mexico's Sea of Cortez, I spent the last 10 minutes of my dive on one side of the animal while two friends were on the other. By sheer coincidence we surfaced at the same time. and I noticed a look of surprise on the faces of my friends. On the boat I asked them why they were surprised, and they were

Feeding Caribbean reef sharks is growing in popularity in the Bahamas. By Marty Snyderman.

quick to respond that they thought I had run low on air and surfaced 10 minutes earlier. That should give you some idea of just how large 40 feet and 40,000 pounds is. We were swimming next to the same animal for 10 minutes, but my friends could not even see me or my exhaust bubbles.

The most predictable whale shark diving occurs in Western Australia during the coral spawns that occur during fall in the southern hemisphere, but encounters at Coco and in the nearby Galapagos Islands are also commonly reported. In recent years sport divers from all over the world have been joining expeditions that enable them to free dive with the whale sharks of Western Australia

## Caribbean Reef Sharks and Silky Sharks: Nassau, Bahamas

Throughout the international diving community, the waters of the Bahamas are reputed to be warm, clear, and filled with wonderful colors, but the region is also said to be lacking when it comes to the opportunity to dive with big animals. It is obvious to me that the divers who made that assessment never dived with Stuart Cove in Nassau, Bahamas on one of his shark dives. Stuart and company offer three different shark experiences, and all are of the knock your socks off variety.

Approximately seven minutes from the dock is a site called The Runway, a place where Stuart and his divemasters bait in a dozen or so Caribbean reef sharks. These sharks are usually quite aggressive, and getting them excited usually takes only a few minutes. No cage is used so the diveraster carefully organizes the divers on

the bottom around the bait, and as soon as the sharks appear the show begins. Upon request, the divemaster will place bait on the end of a pole spear and bring the sharks in close for some fast action and dramatic photo opportunities.

If you are going to take pictures of the sharks, a 20mm lens is a good choice, and if you want to shoot images of the divemasters feeding the sharks, or the sharks swimming among the other divers, then a 15mm lens is probably better suited for that task.

Another Caribbean reef shark dive can be enjoyed at a site known as The Wall. There Stuart and his gang regularly bait in large gatherings of female Caribbean reef sharks as well as an occasional hammerhead and nurse shark. While normally less aggressive than males, the females are a bit larger, and their slower pace gives photographers some extra time to think before tripping the

Once again, the dive leader will feed the sharks if asked to do so, but Stuart and his operations manager Michele Berlanda have found that in recent years more and more divers seem to be less interested in creating a feeding frenzy, and more interested in observing the sharks in their natural environment. These dives are some of shark diving's best kept secrets.

The third Nassau shark experience takes place in deep water, at the A.U.T.E.C. buoy, a little over an hour away from Stuart's dock. The naval buoy is located in an area where the waters of the Atlantic and Caribbean meet, a site known as Tongue of the Ocean.

On our buoy dives Tom Campbell and I were greeted by a half dozen or so silky sharks. Though silkies commonly get to be seven to nine feet long, most of the sharks we saw were a bit smaller. Silkies are beautiful sharks, and photo opportunities abound when you get pretty animals, crystal clear water, sunny days, and free swimming divers. No cage is used, but the divemasters do carry a little bait to keep the silkies in the neighborhood. If you want to get some great photos, all you have to do is position yourself close to the divemasters and bring a loaded camera.

I wouldn't be telling the truth if I said I had never been frightened, uncertain, or anxious in the presence of sharks, but in the end I have always been grateful for my experiences. I hope you get a chance to join a shark diving expedition before too long, and that you, too, will feel as lucky and alive as I do when you see sharks in the wild. 🔀

Based in San Diego, Marty Snyderman is one of the world's foremost shark photographers and a contributing editor to Scuba Times Magazine.



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# TECHNO PHOTO

# DIGITAL DARKROOM

# PART 4 ETHICS AND LEGALITIES IN PHOTO MANIPULATION

Below: Fish in space.
Spock and Kirk never told us about that. Photo manipulation of today is

only limited to one's

imagination. By David

hat if you have an incredible photo of a dolphin jumping and you send it to a magazine for publication. Then the art director calls you with good news-she wants to publish it. However, there's one catch. She wants to digitally combine your dolphin photo with a shot of a sunset which was taken by another photographer. If you go for the idea, then you may be creating a dilemna that many professional photographers are beginning to face. Who will own the new photo? The art director who had the original idea and created it in the computer? The publication that employs the art director? Or do the two photographers split ownership 50/50?

November/December 1993) and the capabilities of the software that make the digital darkroom work (*Scuba Times*, January/February 1994). In this final article of the series we will look at some of the controversies and potential problems the digital revolution has brought to the world of photography.

# Circulation woes

The photo CD-ROM is a remarkable device. It is capable of storing at least 100 high quality photographs on one disk for as little as two dollars per image. These photographs can be digitally removed from the CD and turned back into a transparency

or print that is as good as the original. Since the information is digital, each photo CD can also be duplicated, in its entirety, an infinite number of times, without loss of quality. With a technology as potent as this, how do photographers protect their creative rights?

In the past, we simply held on to the original photo and made a few high quality dupes whose circulation could be controlled. Prints and publication were made from the controlled

original. However, as stock agencies and publishers start requesting photos in the CD format more and more photographs will wind up on them. Once a CD is in circulation it is difficult to



control the fate of the images.

Vast numbers of images can be easily transported or stored. A digitized image can even be sent from computer to computer via telephone with little to no loss of quality. Images can easily be sent outside the country beyond the reach of copyright protection. While this is a real problem, it is just the tip of the iceberg. The vast capabilities of the digital darkroom create a whole other realm of dilemmas.

Given the right equipment and some practice, it is relatively easy to take an image from a photo CD and modify or enhance it in the digital darkroom. While this means the salvation of many photographs that might have wound up in the trash or forever stuck in a box, it also creates some new ethical questions. If I enhance or manipulate a photograph at what point am I ethically responsible to divulge that the original image has been changed? It is

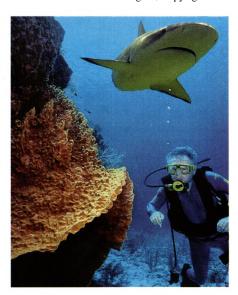


In the last three parts of this series we looked at the what the digital revolution in photography was all about (*Scuba Times*, September/October 1993), the equipment that makes up the digital darkroom (*Scuba Times*,

BY SCOTT FRIER

true that photographers have enhanced photographs for years by retouching, air brushing, spotting or using a variety of other techniques and little was said. However, this was only done on a relatively small scale.

The ease and vast potential for undetectable digital change to a photograph has shed a whole new light on this problem. How much change constitutes a change that needs mentioning? Does it count if I simply take a little backscatter out of a photograph? If I rearrange the composition of a photography but keep the content the same, have I created a new image that needs to be mentioned as such? Does it need to be mentioned at all? Is the new image an original, as well, since technically it is different from the first? Again, copyright



Left: This original photo was okay, but it needed a little spice. Above: An educated eye can tell this photo was doctored on a home computer. However, with more time, images can be combined flawlessly. Photos by Ann and Carl Purcell.

protection becomes a problem. If an image is taken off a CD how much change must be made before the image is no longer protected by copyright? How can I protect my images from being pirated and changed to the point where I lose control of them?

Art or piracy?

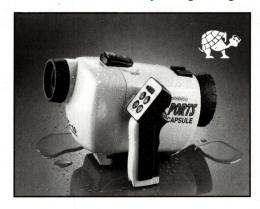
In the digital darkroom two or more photographs can be seamlessly combined to create a whole new image. This ability creates additional dilemmas. First, we are back to the protection of image ownership. If a part of one of my photographs winds up as part of another how can I keep track of this? How can I prove it? The ability to digitally combine images is fraught with dilemmas beyond just the protection of copyrights. For

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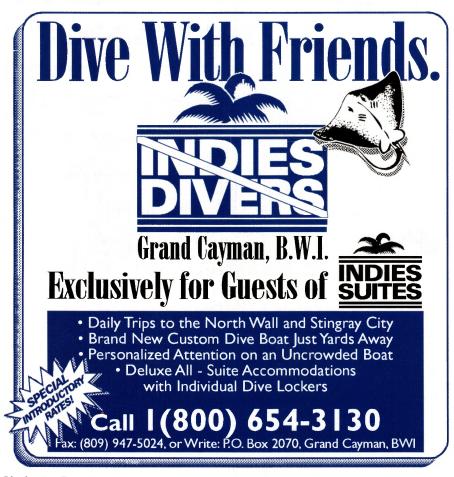
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example, what is the new image? Is it still a photograph or is it now considered an illustration? At what point does the photograph turn into an illustration?

This brings us to a whole new point of controversy. Is an image that has been enhanced or generated by the combination of images still considered the art of photography or is it such a manipulation of reality that it now belongs in a class by itself? I would argue that the image is still part of the art of photography regardless of the degree of computer manipulation. We often manipulate reality when we work with light, lens or many of the other creative tools accepted in mainstream photography. The great artist/photographer Ansel Adams spent many hours manipulating his photographs in the traditional darkroom and we consider them works of fine art. The digital darkroom is just the next step in the growth of photography. When challenged as to the artistic value of his new school of impressionist painting the 19th century artist Claude Monet replied, "Techniques change but art remains the same."

You have probably noticed that many of the questions I brought up in this article are unanswered. The reason for this is simple at this time there are no set answers but in time there will be, there must be. However, if you're using or thinking of using digital techniques, perhaps you should consider setting your own guidelines in dealing with various forms of publication. For example, if you work with a magazine regularly, you may decide to give them carte blanche with your photos. On the other hand you may want to have approval rights to any changes, even if the art director is "enhancing" the color. The point is, right now there are no rules, so photgraphers are making their own.

If you're not a professional photographer and just using CD-ROM as a storage technique, you should be careful about loaning your CDs to others. It would be very easy for someone to "lift" one of your images onto another computer. You may be surprised one day, when you see one or part of one of your photographs in print with no compensation for you.

I was recently at a photographic trade show where there were various seminars on digital imaging. Near the end of the show I noticed a good number of people walking around with pins that said: "NO CD-ROM." It is easy to wear a pin and hope a problem will go away but history has taught us that this just isn't so. Technology constantly moves forward and carries its attendant problems along. Like the technology that spawned them they will not go away. The digital revolution is here to stay.

Scott Frier is a technical representative for Nikon and a contributing editor for Scuba Times Magazine.

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# CREATURE FEATURE

# THE BLUETHROAT PIKEBLENNIE



ettled on the sandy bottom of Cayman Island's Oro Verde, my dive buddy Jay Ireland and I were watching small lancer dragonettes scoot about when some peripheral movement attracted our attention. Upon closer inspection we found the motion was caused by a bluethroat pikeblennie, *Chaenopsis ocellata*. I had heard that these animals were

extremely careful not to stir up any sand that would hinder photography. Even with our slow approach, however, the blennie disappeared into its protective hole.

Luckily Jay had a small pocket mirror, and he also knew that blennies are territorial. We patiently waited while positioning the mirror in front of the blennie's den. The mirror opportunity to snap several shots of the exhibition.

A mirror is a great tool that can be used to coax territorial fish out into an open area where they can be more readily photographed. The fish becomes so preoccupied while sparring with its reflection that it ignores the photographer. This makes it possible to move in closely even while using framers. Mastering this technique effectively does require some practice. The mirror needs to be positioned in such a way that it is not included in the final image. This becomes difficult when the fish is in physical contact with the

Armed with a Nikon F3 encased in an Aquatica Housing, we were ready for the shot. A 55mm lens was used, and the dual Ikelite MV strobes were carefully positioned to minimize light reflecting off the sandy bottom. The aperture setting was F32 to provide the maximum depth of field, and the photograph was shot at 1/60 second.

The bluethroat pikeblennie is one of about 600 species of fish that are generally recognized as blennies. As these fish are small, move very little and blend well into their surroundings, they can be difficult to find. In general, blennies can be recognized by their distinctive single dorsal fin. They tend to perch with their body in a curved position and most are carnivorous. Blennies can be found in tide pools and rocky areas as well as coral and grass beds.

—Georgienne Bradley



occasionally sighted on the sand flat near the artificial reef and had dedicated several previous dives to searching for these elusive creatures. I had all but given up when, by chance, one caught our eye.

Because bluethroat pikeblennies typically occupy deserted worm tubes, I was surprised to find this one in a small hole in the sand. Slowly creeping closer, we were successfully deceived our subject into believing that there was an aggressive, challenging pikeblennie encroaching on its territory. This instigated the defending blennie to launch a full combative display. With its blue-striped gill plates flared, mouth agape and its elongated dorsal fin erect, the blennie struck at the "intruder." This instinctual behavior was repeated several times, giving Jay the

BY GEORGIENNE BRADLEY This is the fumble-proof, fool-proof way to take gorgeous 35mm color photographs whether you're snorkeling or diving deep. Click! You've got the Anemones, the Parrotfish, and the Angel. Click! You've got your close-up of the Bluestriped Grunt sticking his nose out of a wreck.

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# UP CLOSE AND PERSONAL

WITH DAVID FLEETHAM

Now You See It — Now You Don't

The following images were
captured by David Fleetham, a

Maui-based marine photojournalist,
while diving in Indonesia.









# 510

Above left: Looking somewhat like an alien from War of the Worlds, this Mantis shrimp with his multi-colored eyes warily pokes his head out of his small cave to look back at the camera.

Left: With eyes mounted atop like twin periscopes, this Fiddler crab fearlessly scuttles along, knowing he could easily fend off would-be attackers with his huge right claw.

Above right: Despite its slender shape, this clear Goby seems to be nearly invisible as it hides in plain sight among the round bubble coral.

Right: These camouflaged Shrimp, looking more like pencil drawings, are patiently waiting, and hiding, among the hard coral for their eggs to hatch.

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### WETNESS DETECTOR

If you wake up in a cold sweat at night dreaming that you've flooded your underwater camera, you can now sleep in peace. Pacific Camera has introduced the Sub-Detector, which checks watertight integrity of all Nikonos cameras, lenses and strobes, prior to the dive. The Sub-Detector can be used on individual pieces or when the system is installed together. The Sub-Detector requires no batteries. For more information call 714-642-7800.

# SHOE ARMS AND SPOT SHOTS

New Hampshire based, Underwater Photo Tech, has recently introduced two new gadgets for macro photography. The Shoe Arm is a convenient unit which connects a strobe directly to the viewfinder bracket on top of the camera. This places the strobe in the perfect position for macro shooting and eliminates the need for a tray and arm system for the strobe and camera. The Shoe Arm is also easily detachable for hand-held strobe use.

The Spot Shot is a unique framing and focusing system intended to replace



conventional wand and framers. Two small flashlights are attached to a bracket on opposite sides of the camera and aimed so that their beam cross at a precise focal point. By using light beams instead of rigid framers, the Spot Shot eliminates contact with the reef and the subject. It also decreases the need for baiting (which eliminates backscatter), helps to get the camera into tight spots and creates less fear to the fish. For more information on either of these products, call 603-432-1997. N

# FREE CAMERAS FROM NIKON

Well, it's not really a free camera, but divers can receive a \$100 certificate entitling them to test dive the Nikonos V system for one day at no charge and with no purchase necessary. The certificates are available until April 1, 1994 (no fooling) and will be honored at participating Nikonos Photo Centers in the Caribbean, Bahamas, Florida Keys and Pacific. Any qualified diver submitting a certificate can borrow the system (Nikonos V, 35mm lens and SB-103 Speedlight strobe) and receive expert instruction and a professional critique at no cost. Certificates can be ordered by writing to Nikon Inc., Test Dive, P.O. Box 9386, Canoga Park, CA 91309-9386. Limit one certificate per person.

# CORAL SEA DREAMING

Coral Sea Dreaming is a new VHS videotape showcasing Australia's Great Coral Reef and is produced by Small World Music Inc. of Nashville, Tennessee. This 55 minute underwater odyssey is the result of over four years of collaboration between a group of Australian-based scientists, film makers and artists, who share an obsession with coral reefs.

The images in Coral Sea Dreaming represent a novel approach to natural history, which synthesizes scientific knowledge and aesthetic appreciation into a new musical, artistical expression. Narration was purposely left out of the video. In its place though is a 20-page full color booklet.

Coral Sea Dreaming was awarded the Gold Camera Award at the U.S. International Film and Video Festival for the Best Nature Video of 1993. For details contact (615) 320-7672. N



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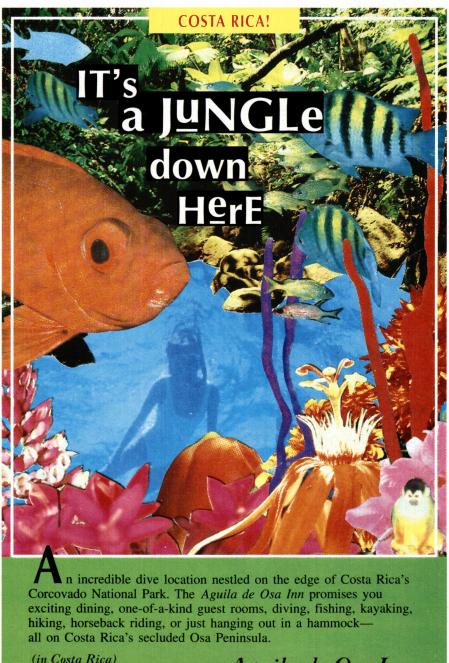
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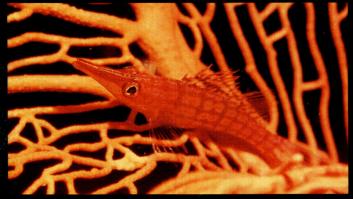
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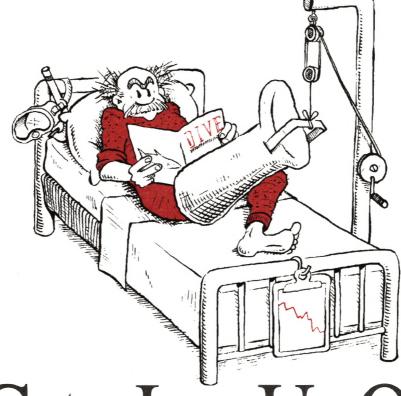


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# Why do I need divers insurance?

Though not common, a diving injury can result in debts totaling thousands of dollars.

In many cases, a diver's insurance has not paid for chamber treatment. Air ambulance companies have refused to transport a diver without cash up front.

The cost of hyperbaric chamber treatment varies greatly. Contrary to popular belief, most divers do not recover in a single treatment. The average length of treatment is approximately five days and the cost can be between \$5,000 to \$40,000.

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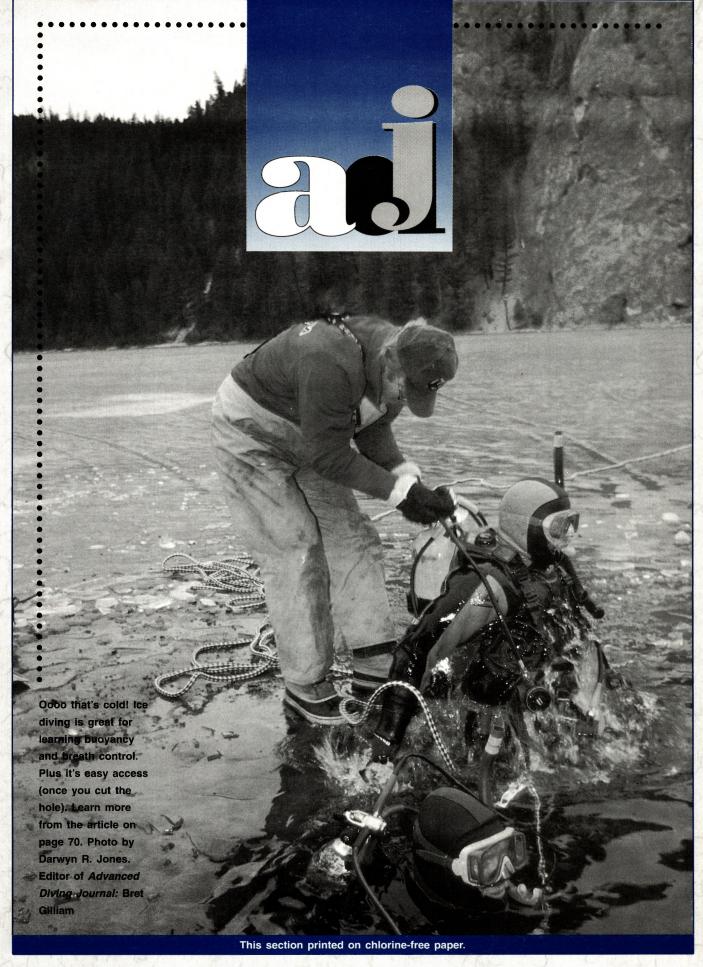
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March/April 1994 Scuba Times 69



# Chill Out Is ice diving for you? Is it for anyone?

o diving in near freezing water? Through a hole in the ice? On the end of a rope?

Let's face it. On the basis of that description, if prisoners of war were forced to engage in ice dives, it would a violation of the Geneva Convention. No question about it.

So why, every winter, do so many people clamor to participate in an activity which looks and sounds like a weird disaster-film blend of *Alive!* and *The Poseidon Adventure?* 

Three reasons, really.

The first, and the one you'll most often hear from inland freshwater divers, is visibility. Inland lakes, particularly those which are not spring-fed and lack constant current, are usually vigorous environments for algae and the other biological nuisances. While these minute creatures do an admirable job of anchoring their end of the food chain, they do so at the cost of underwater visibility. In many Midwestern lakes, early-summer visibility can drop to virtually braille levels.

But in high winter, once those same lakes have frozen over and been covered for weeks with a blanket of snow, a marvelous thing happens. Photosynthesis ceases, lower life forms take a deep-six until spring, and—well, to say that visibility improves would be an understatement. During one late-February dive in Michigan last year, we swam to the end of a 100-foot line, turned back to look in the direction of the hole, and could clearly make out our

safety diver, who'd popped in to check the great viz himself. Add to this a whole spectrum of fish—from guppies to tiger muskies—which are dulled to half-speed by low water temperatures, and you have a combination of good visibility and something to see. Particularly for underwater videographers and photographers, the mid-winter hard freeze is the time for freshwater diving.

The second reason for ice diving is convenience. Can't get to the Caymans? Florida too far to drive for the weekend? Go jump in the lake; ice diving is a quick and inexpensive (no boat!) way to get into the water. And even if you do have a dive-til-you-drop Caribbean excursion

scheduled for early spring, ice diving is an excellent way to make the trip with skills honed through frequent—weekly, or even daily—diving.

The final reason to combine the great plunge with the big chill is that, although most ice divers enjoy projecting the illusion that this is an activity only for the most hirsute of men (or, scarier still, the most hirsute of women), it really is a very comfortable way to dive. A good dry suit makes it possible to virtually ignore any temperature at which wa-

ter will stay liquid. Even wetsuit divers can comfortably tolerate the temperatures if they take such crafty steps as pre-charging the suit, just before putting on the BC, with a thermos of warm water.

By standing on a wooden palette (or in a pinch, a pair of upside-down fins) divers waiting their turns to dive can keep from losing heat to the ice through their boot bottoms. A heavy coat, dry gloves, and a dollop of warm cocoa can keep wet-suited divers warm aprés dive, and those who dive dry may even find that, on sunny days, the biggest problem is keeping from getting too warm while standing vigil around the hole.

Particularly if you take the recommended step of shoveling several spoke-like paths out from the hole for 100 feet or so, ice diving is not the abysmal, dark experience you might imagine. In fact, most ice divers won't even require dive lights. With shoveled paths admitting sunlight through the

ice, the experience is like diving under banks of fluorescent fixtures.

So, is ice diving for every diver? Absolutely not. First, forget the fact that you may have learned to wreck dive, river dive or deep dive without a specialty course. Ice diving is different enough that you should get special training (available through most snowbelt dive shops) before you participate.

Second, this form of scuba is not for the novice diver, particularly one who has just gotten the C-card a dozen or so dives ago, and whose only previous experience is a lycra-clad dive trip to the Bahamas.



Ice diving requires being tethered to surface tenders, who can be seen through the ice in this photo. By Darwyn Jones.

B Y T O M M O R R I S E Y

Ice diving involves either a thick (1/4 inch minimum) wetsuit, or a dry suit, both of which will dramatically alter a diver's natural buoyancy characteristics. In addition, water does weird things to buoyancy as it gets colder. Below 10 feet or so, the water pressure will do what it does everywhere else, adding squeeze to suits and BCs, and making a diver more negative.

But in the upper five or 10 feet—the part where you tend to get "floaty" in most types of diving-near-freezing water is so laden with free oxygen that it loses weight and density. As a result, a diver will become slightly negative in the upper water. The typical ice dive, then, involves going from a region in which the diver is negatively buoyant, to a brief purgatory of positive buoyancy and back to a negative zone again. In near-freezing water, heavy use of the BC power inflator-particularly if you're breathing on the regulator at the same time-will lower the regulator's first-stage temperature to the point that most models will readily freeze up and freeflow through the second stage. Add the challenge of diving tied to a rope (recreational ice diving is always done with a surface tender), and you have a situation which is going to be formidable -if not downright dangerous-for a brand-new diver.

Ice diving is very enjoyable once you've logged enough dives to be comfortable diving on a tether (something best practiced in open water first), and once your diving skills are so refined that you can deal without panic with a freeflowing regulator (free flows, by the way, become less common with seasoned ice divers, who'll have both better breath control and advanced, freeze-resistant breathing equipment). It also helps to be familiar with diving in an overhead environment-wreck and cavern diving are good practice. Claustrophobes should not ice dive, but then again, claustrophobic people shouldn't be diving in the first place; go skiing.

A great result of becoming an ice diver is that, if you can dive and maintain decent buoyancy in near-freezing water, wearing a dry suit or layered wetsuits, all the while keeping your legs and tank valve from becoming tangled in the rope, a wonderful thing happens when spring comes, and you resume normal diving. You become a very, very good diver. In warm, tropical waters, where suit buoyancy is not a factor, you'll go beyond good—you'll become a star. The same skills you use to keep

out of the silt or off the ceiling in an ice dive will allow you to hover, camera in hand, scant millimeters from a living reef, while you wait for that angelfish to show you her good side.

Divers who've gained the experience and have taken the specialty training required for safe ice diving will usually become winter-diving junkies. After a few plunges through the ice, it's not uncommon to see a diver going to the next plane, "skiing" upside-down on the underside of the frozen lake surface, or trying ice diving at night (seriously). But when you get to that point, don't tell anybody else how much fun it is. Why spoil a perfectly good macho rep?

Contributing editor Tom Morrisey cuts holes in the ice and drinks cocoa in Romeo, Michigan.

# EARNING AN ICE DIVING SPECIALTY CERTIFICATION

If you want to learn to ice dive, contact virtually any scuba shop in the snow belt. If they don't teach the course themselves, they can probably point you to someone who does. Or call any of the agencies below, and ask them to refer you to a dive center in your area that's qualified to teach the ice diving specialty class. Note that all agencies have some type of prerequisite rating in order to learn to ice dive.

# NAUI

P.O. Box 14650 Montclair, CA 91763 Telephone (909) 624-6210, Prerequisite rating: Advanced certification (NAUI Advanced Diver or equivalent), at least 18 years of age.

### **PADI**

1251 East Dyer Road, #100 Santa Ana, CA 92705-5605, Telephone (714) 540-7234, Prerequisite rating: Open Water II, at least 18 years of age (Advanced Open Water recommended).

### PDIC

1554 Gardner Avenue, Scranton, PA 18505, Telephone: (717) 342-1480. Prerequisite rating: Must be an Advanced Open Water Diver, at least 18 years of age and a minimum of 25 logged dives.

### YMCA Scuba

6083-A Oakbrook Parkway, Norcross, GA 30093, Telephone: (404) 662-5172, Prerequisite rating: Must be an Open Water Diver at least 18 years old, with a minimum of 15 additional dives (Advanced Open Water recommended).

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# Will We Ever Table Tables?

question PADI commonly gets—as undoubtedly do other training organizations—is, "With everyone going to dive computers, do we still need to teach dive tables?"

It's a good question. The prevailing answer seems to be, "Yes, but eventually, no." You won't have to go far to find differing opinions as to when "eventually" will come about. Rather than bet on opinions (or tea leaves and

tarot cards for that matter), you can make your own estimate by watching for the changes that will finally make dive tables obsolete.

1. Computers must become standard equipment. By "standard" we mean that if you are a diver, you're expected to have one and wouldn't dive without it, just like your BCD, submersible pressure gauge and alternate air source. Some people think that the dive community can make computers "standard" simply by mandating it. The truth is, no dive equipment has become standard by mandate and attempts to do so have failed. BCDs, submersible pressure gauges (SPG), alternate air sources-even fins and snorkels, for that matter-became standard by offering benefits few divers wanted to do without. At some point, virtually all divers were using, for example, SPGs, and thereafter

diving without it was considered unsafe and inappropriate. The SPG became a dive community standard through acceptance, not imposition.

However, a global perspective makes this process more complex. While the alternate air source is considered standard equipment in the U.S., it's not in many areas of the world. This is one reason that international training organizations like PADI and NAUI still teach buddy breathing as well as alternate air source use. More than likely, the computer will become standard equipment in some areas more quickly than others. Likewise, until all areas make it a standard piece of equipment, tables will be taught.

So, dive computers must go through the evolution of becoming standard equipment, not just in the U.S., but throughout the world. Presently, it's not reached that stage

anywhere, but as time goes by, more divers discover that computers offer significant benefits in safety, extended dive time and convenience. These benefits seem to have the move toward "standard" equipment status well under way.

2. Computers need greater reliability. As long as there's a reasonable possibility that a computer will fail, especially on an expensive dive trip, divers will carry (or

at least stick in their gear bags) dive tables. Dive tables will still be considered acceptable alternatives to using a computer. Manufacturers have come a long way with dive computers. They're more reliable than before, and user changeable batteries have almost become the rule. Still, they must be so reliable that failures are extremely rare, and/or so widely accepted that a diver has no trouble renting or buying another if his does fail. In other words, the possibility of needing tables must be practically eliminated.

Reliability could also come in the form of computers that cost little more than you'd presently spend on a depth gauge and timing device. Then it would be economically feasible to wear a primary and a back up computer, just as many divers presently carry a depth gauge, watch and tables along with their computer. While some divers wear two

computers already, current prices are a bit high to expect two, much less one, to become a standard practice soon.

3. Divers will have to let go of tables. Often, old methodologies hang around simply because we're comfortable with them. Although the SPG made reserve J valves obsolete, it was years before some divers were comfortable without them—and some still aren't! Likewise it may be difficult for some divers, including some instructors, to let go of tables. After all, tables can't glitch out, flood or croak from drained batteries. Time usually changes such attitudes. When, after carrying, tables for ten years, the diver notices he hasn't needed them even when his computer did fritz out a few times, he concludes that perhaps they're superfluous.



Like the sands of time? How long will teaching tables hang on against the age of the computer?

BY KARLS HREEVES

#### A Good Change

When the three conditions mentioned have been met, we'll probably see tables disappear, and new divers won't be trained to use them. Instead, they'll be taught exclusively the use of dive computers. Although some divers will be uncomfortable with this thought (see #3 above), there are more than a few advantages to consider.

First, while most new divers master dive tables with little difficulty, dive table mastery may erode quickly with inactivity. Dive computers, on the other hand, don't forget. With dive computers standard equipment, forgetting table use vanishes as a problem. In addition to that, teaching tables can be quite time consuming; eliminating table instruction could free more time for emphasizing safe diving practice with computers, such as safety stops and other guide-lines that aid the diver in avoiding decompression illness.

Second, dive computers can reduce human error because they track dive profiles much closer than do divers. In fact, tests show that the actual dive profile can differ surprisingly from what a diver believed it was. Admittedly, tables provide added conservatism through depth/time rounding and other restrictions, but dive computers don't get distracted by Queen Angelfish and shipwrecks.

Third, because computers give more dive time on an ascending multilevel profile, they encourage such dives. Many physiologists believe that these profiles have the lowest decompression illness risk, so this could promote diver safety. (Note: It should be pointed out, however, that some physiologists don't see the multilevel profile as a risk advantage.)

#### **But When?**

As stated at the outset, it's hard to say when computers will completely replace dive tables, but it will probably happen eventually. If you're pressed for a precise date, a wise adage may be the best answer: It will happen when it happens.

Karl Shreeves is PADI's Manager of Technical Development. Along with Dr. John E. Lewis, he is coauthor of The Recreational Diver's Guide to Decompression Theory, Dive Tables and Dive Computers, now in its revised second edition.

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# Unlucky Lucerne Life and Death on Lake Superior

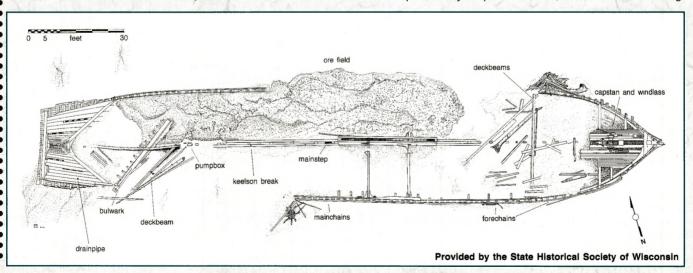
hree-two-four-three-four-point-six by 46234.9," Larry Taylor, my father-in-law, reads from the Loran. "We should be over her." He spins the helm to starboard, putting his 28-foot Bayliner Sandpiper into a search pattern. Neither he nor my mother-in-law Donna have pinpointed a wreck before, but they've been avid boaters for years. They make it look easy. "21 . . 21 . . 19 . . 20 . . 15," reads my wife Julie from the depth finder, "18 . . . 5 feet!" The finder paints a sharp upward spike. "That's her," I say, scrambling forward to the anchor. "Go back over her, then yell for me to drop when we're just clear of her." This point is important because we're in the Apostle Islands National Lakeshore on Wisconsin's Lake Superior shoreline. The National Park Service, which issued our diving permit, has asked us to avoid anchoring in the wreck itself. "We're over her," says Julie, "Ready and . . . now!" Nylon three-strand slides through my fist; Sandpiper turns to the wind as I cleat it off, and the anchor bites into Lake Superior mud. I pay out extra scope so it holds firm and clamber back aft. Julie and I climb into our dry suits, with helping hands from Larry and Donna. Although they won't be diving, excitement mounts for them as well as us because they've heard the stories about the ship's final moments. The ship is the Lucerne, and her demise is a well-documented—if somewhat grisly—story dating back more than 100 years.

In her day, *Lucerne* was beautiful—even without allowing for the fact that she was basically an iron ore freighter. At 728 tons and five feet short of 200, she was a three-masted

schooner known to be reliable and fast—one of the last of the sleek, wood hulled ships that plied the Great Lakes. On November 15, 1886, she sailed from Ashland, Wisconsin with 1200 tons of ore—a light load for *Lucerne*. Nine crew and her master, Captain George S. Lloyd, expected this to be one of the season's last runs and a fast one thanks to new sails on the masts. As *Lucerne* cleared Chequamegon Bay, the weather appeared ominous but passible, so the crew pressed on. Lake Superior is no place to be when the weather sours, least of all in November.

By the next day, *Lucerne* was engulfed in gales and crashing up and down in heavy seas as she battled what escalated through the day into one of the worst northeasters in Superior history. Hurricane-force freezing winds tore at the ship as she crashed up and down, pounded and washed under giant waves. A steamer passed her midstorm, but fighting for their own lives, its crew could only watch helplessly as the battered schooner fought its way toward the lee of Long Island, seeking shelter. The steamer sailed on; it was the last time anyone saw *Lucerne* afloat, or her crew alive.

It's unclear whether the wreck was first spotted by a tug sent from Bayfield, Wisconsin, to look for her or by the Long Island lighthouse keeper, but both knew her whereabouts on November 19. She wasn't hard to find because she lay in such shallow water that her masts jutted well above the surface—with three of her crew strung amid the rigging, frozen solid. It appeared they had climbed there to escape the icy Superior waters, to no avail. A fishing



boat took the bodies to Bayfield; no others were found.

"We're on the bottom," I report to Larry as Julie and I reach the anchor. I'm wearing a full face mask with underwater communications, primarily because my father-in-law and I share a fondness for gadgets, and this involves him in our dive. However, Lake Superior's fickle weather has added a more serious angle; the sky has darkened, and he must be able to recall us if it looks like it will storm.

It takes only a few kicks to reach her. We swim onto the Lucerne over a field of rubble-her iron ore cargo-from her port side. Immediately, we find timbers and planks, all solid and strong, testifying to the preserving power of Superior's cold, fresh water. Little structure remains amidships standing along the hull, but down the keel line we find the mainstep and keelson break protruding upward near the surface. The latter was what read only five feet deep, and it's a good

thing Sandpiper's draft is shallower: It is massive and strong, beautifully crafted so that wood joins wood with iron skillfully woven in to reinforce and will probably be still be standing in 2093. At the bow, we find part of Lucerne's main deck still stands, with the capstan and windlass in place. Chain hangs down below the deck; swaying gently, eerily.

We spend the rest of the dive exploring the bow. The weather holds, and after a short surface interval we visit the stern. Remarkably intact, the aft end rises off the bottom supported by her keel; we swim under her hull until we come out at her stern. It, too, has lasted more than 100 years underwater surprisingly well. As Julie and I head back to the anchor, Larry calls to tell us the storm clouds have passed us to the west. We have ample air, so we decide to swim Lucerne's length one more time before leaving. As we do, it strikes me that Lucerne contradicts. She's so broken, yet so preserved. So little

remains of what she was, yet what she was is unmistakable. We say good-bye and end the dive reluctantly.

Visiting Lucerne

Lying in the shallow lees (about 20 feet max) of an island, Lucerne is not only a worthwhile dive for the serious wreck enthusiast, but also for the beginner. She's not too far from land, but she is a boat dive. Currents are seldom a problem, and she's out of the main boat traffic areas. There's enough structure to be interesting, but there's no real overhead environment where a diver could accidentally get lost or trapped. If you have Loran and a depth finder, she's not hard to find. On the other hand, like any Lake Superior wreck, weather and water conditions require constant vigil. Even in July, temperatures are cool (45°F to 55°F), requiring full wetsuits with hoods, or better, dry suits.

Lake Superior storms can sink ships, so a dive boat had better be sheltered (Continued on page 79)

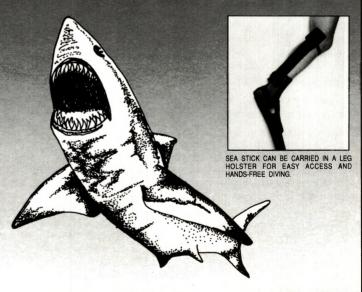
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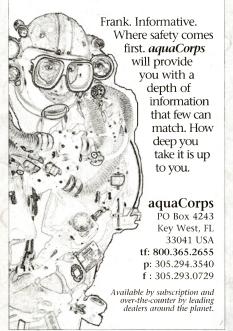


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# Why? Because it's the Rules!

o you ever get the feeling that the guys making up some of the rules for diving are the same guys that got fired from the M&M factory because they threw away all the "W"s? If that makes sense to you, then we have a cabinet post for you in the Ministry of Silly Diver Practices.

Here's a classic. In the early 1970s I was staffing an instructor training program and was evaluating several candidates who were demonstrating mask clearing technique. One guy launched into this discourse, "Roll over and blow air from your nose to allow the water to drain out the side of the mask."

"But," I queried, "wouldn't it be easier to look up and drain the mask from the bottom where the water will be more naturally channeled?"

"No," he quickly shot back. "I was trained to do it that way."

"Well, why? Does it make any sense?" I countered in my best Socratic teaching style.

A funny look came over his face and he admitted he had never really thought about it since his own instructor was an ex-UDT diver who knew everything. It turns out that his well-meaning mentor had taught him that way because he learned to dive on a double hose regulator and in order to clear the mouthpiece if it flooded, you had to roll on your side and get the exhaust hose to the lowest point. He was taught to clear his mask in that position since his instructor figured if your regulator had fallen out then your mask might have gotten dislodged as well. The technique made sense in its era, but with the advance of the single hose regulator, equipment evolved beyond the 1960s.

Inquiring minds might have some fun with a look at some of the more popular "Ten Commandments" in use today:

Always be back on board the dive

boat with a minimum of 750 psi. Why? Can you cash in that for credit at the Air Fill Bank & Trust? Since we all now should know the significant benefit of safety stops, wouldn't it make more sense to suggest arriving at the decom bar or the anchor line at about 15 feet with 750 psi remaining? Then use the air for a nice five to seven-minute safety stop. As long as you don't drain the cylinder there is no chance of getting water in it, and that's more than enough reserve for a good hang and then to comfortably surface. Why waste 25 percent of your air? Use it under water.

Always put your weightbelt on last. This is a holdover from when most horsecollar style BCs had crotch straps, or tank harnesses were so complex that you had to be the Lord of the D-Rings to get adjusted. Most modern BCs have no crotch straps to potentially foul the weight belt, and the waist/chest strap is secured with buckle riding well above the hips. I put my weights on first and it makes donning the other gear far easier.

Never put your mask on your forehead. Why do divers feel compelled to apologize for this benign and common sense act? Sure, there are some circumstances when it's not appropriate like in the surf entries, but in most situations it is a logical place to put the mask while resting on the surface or swimming on your back. An easy one-handed motion restores it on the face quickly and you're back in business. Try that when your mask is pulled down over your neck. If you are a no-neck ex-football player like me that's an exercise in self-strangulation. Who cares where you place your mask as long as you remain in control of it. Lighten up, please.

You are properly weighted if you float with a full breath and sink slowly when you exhale at the beginning of

a dive. Hey, anybody here ever heard of safety and/or decom stops? You want to be able to hover or maintain neutral buoyancy at the end of a dive to perform stops in the 15-foot depth zone. Your aluminum cylinder may gain as much as six pounds of buoyancy as the air is depleted. If you do your weight test with a full tank you'll end up hopelessly positive by the end of the dive. Make adjustments for neutral buoyancy with a nearly empty tank.

snorkels these days are the size of nuclear exhaust chimneys and have sufficient drag to make you swim in a nice tight circle to the left. For a lot of divers attached snorkels don't allow the mask to seal comfortably. They tangle the hair, and several accidents have manifested when the snorkel (instead of the regulator) was placed in the mouth during an emergency. And remember, most modern BCs are designed for surface swimming on your back, rendering a snorkel useless.

Blow some air from your tank on your regulator first stage dust cap. You can't dive if you have a beer It's a mystery to me how this with lunch. Obviously we all practice ever got started. Why agree that abusive drinkers not just dunk the whole thing should not be allowed to dive, in the ocean since it has the but consider that alcohol same effect? When you has the same dehydrating

crack the tank valve following a dive there is a fairly good amount of salt water trapped in the o-ring groove, which you immediately atomize into a salty grit forcibly coating the dust cap and then sealing

that corrosive cocktail on your first stage. If you're really concerned about cleaning, dip it in fresh water or lick it off before replacing. That also saves a lot of needless noise from sudden tank blasts that the harried boat crew thinks was a burst disc or blown o-ring.

Always wear a snorkel on scuba dives. If you want to carry one in a pocket or on your leg, OK, but why would you want one attached to your head where it can distract you? Some

effect as the caffeine in soft drinks, coffee and iced tea. The effect of moderate consumption of these beverages is of little consequence anyway. One beer may or may not effect your judgment, but physiologically two cups of java or a six pack of Cokes may wreak more havoc on your system than a half ounce of alcohol.

ID VACKSON

The best entry is a giant stride with an inflated BC. I guess it might make sense if you planned on bobbing around on the surface, but if your intent was to go diving under the water, why not just do a simple feet-first entry and continue right on with your descent. Most accidents manifest at the surface, it can be rough up there, and any surface wind or current tends to swiftly

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Decompression diving is more dangerous than no-decompression diving. Sorry to burst the bubble (no pun intended), but this doesn't measure up for several reasons. First of all, all dives are decompression dives since the ascent rate is factored in as part of the decompression even on no-stop profiles. Secondly, divers can employ a wide variety of table or computer physiological models than will have different no-stop limits as a matter of proprietary design. The navy tables use 60 feet for 60 minutes as a no-stop model while the Buhlmann based Micro Brain Pro Plus computer uses only a 44-minute exposure for the same depth. If the computer dictates a stop based on a square profile, can anyone seriously argue that diver is more at risk given his conservative exposure by comparison? Finally, if you run any decompression model up to its limit but stay just outside the required decom zone and ascend directly to the surface, you will find, in most cases, that this diver will have more sub-clinical decompression stress (detectable by Doppler) than the diver who went ahead and planned a dive that required stops but allowed a more complete and thorough outgassing.

You can't get bent on one tank. With single cylinders now available boasting volumes in excess of 200 cubic feet, you can now have the luxury of bending yourself several times on one tank if you like. Even with single 50-foot cylinders, I know dive guides who can get a couple of wall dives out of one and still have enough left over to blow up the flat tires on their rusted-out jeeps.

We can see that a few sacred cows continue to moo long after their milk ran dry. A healthy dose of common sense goes a long way. If the emperor wears no clothes or if your dive guide seems to have neglected to don his intellectual wetsuit, then say so. We all benefit from lively discussion.

Bret Gilliam, president of Ocean Tech, is a 23-year veteran of the professional diving industry whose operations have conducted over 200,000 dives for the public. He is vice chairman of NAUI's board of directors and vice president of IANTD. He is editor of Advanced Diving Journal.

(Continued from page 75)

when one hits. Always check weather reports and leave someone aboard to recall divers if the weather sours; it can change in minutes. The dive season is short, usually late spring to early fall. Virtually all divers visiting the Apostle Islands and Lucerne sail from the Bayfield, Wisconsin area. Bayfield is a small resort community that caters primarily to boaters and anglers. This idyllic, out-of-the-way community with small town charm also has an excellent dive store. The easiest way to find Lucerne is to go with a charter. If you have a boat with Loran and a depth finder, her coordinates are 32434.6. 46234.9. The bottom is flat and unobstructed there, so you'll find her in short order with the bottom machine. Don't worry-you'll know when you pass over her. If your boat draws more than three or four feet, go slow and be careful for the keelson break. (Note to Loran users: You can pick up four Loran stations in the vicinity of Lucerne; use only the two that give you those numbers. If you use other stations, you'll be off position and you'll have to search longer to pinpoint her.) Before you head out, though, you'll need a permit to dive from the National Park Service. There's no charge and you can get one at Park Headquarters Visitor Center in Bayfield, or up the coast at Little Sand Bay Visitor Center. To complete the permit, you'll need to provide the names of all divers, boat name, registration and type and the sites you plan to visit.

If you're at the Little Sand Bay center, you'll see carefully preserved Lucerne artifacts on display. These, and artifacts at Canal Park Marine Museum in Duluth, Minnesota, remind us that while Lucerne's history lies in the lake's hands, her future lies in ours. As is every Apostle Island shipwreck, today Lucerne is protected. It is illegal to remove anything from the wreck. This is important because she'll be a wreck worth diving only as long as enough remains to reveal the proud schooner she was, and the tragic fate she met. Lake Superior claimed Lucerne at its whim. Then, it preserved her against the ravages of time. How ironic that for all its power, Superior cannot preserve Lucerne against the ravages of man. That, we must do.

Karl Shreeves is PADI's manager of technical development and a contributing editor for Scuba Times Magazine.

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# Kayak Diving The wave of the future?

e are totally immersed in the sights, sounds, and smells of nature as our kayaks glide silently across the crystal blue waters. A gentle breeze carries the sweet scent of tropical foliage, fueling some primal inner fire with the energy to propel our craft through

a wilderness which has changed little since ancient times. Suddenly, the water erupts as dolphins herald our arrival with acrobatic leaps. A long, rounded nose and large, dark eye appear, curiously seeking clues to our intent. With an untranslatable whistle, the scout slips quickly away, teasing us with her effortless mobility. Taking their greeting as an invitation, we stop paddling, slip over the sides of our kayaks, don our scuba gear, and descend to join them in their world.

Such alliances with nature are the norm, not the exception in the exciting cross-sport of kayak diving. Increasingly, divers are recognizing their obligation to be responsible stewards of the aquatic environment. Kayak diving perfectly exemplifies that stewardship in its use of a human-powered, minimal-impact vehicle. It offers the diver freedom to observe, select, and enter the underwater world with the least possible disturbance of its natural inhabitants-an unparalleled dimension of respectful intimacy with the aquatic environment both above and below the water's surface. This is eco-diving in its most pure and simple form.

If you have known the frustration of ducking behind a coral head to let a churning cloud of marginally competent dive tourists pass or of trying to be patient while waiting

behind 30 other divers for your turn to step off a dive platform, rest assured there is an alternative. The personal dive craft (PDC) allows uncrowded diving in remote locations often inaccessible by larger, motorized dive craft. Capt. Stephen J. Mallerich, owner of Monterey Bay Dive Center, points to Monterey Bay as a perfect example. "With the long-awaited designation of Monterey Bay and the rugged coast

surrounding her as a National Marine Sanctuary, kayak diving takes center stage for providing access to the sanctuary's many remote locations," says Mallerich.

Being a kayak diver requires more than having dive gear and a kayak. In combining two technical sports, kayak

> diving presents its own unique challenges. Though not generally a prerequisite to a specialty course, it is desirable to have paddling experience before you begin. Think about it. It makes sense that you would learn to operate a motor boat safely before venturing into open water. Your PDC is really no different. Become a competent kayak captain. Most certification agencies require or recommend you be an advanced diver before taking kayak diving. The accomplished kayak diver will also have a working knowledge of boatmanship and general seamanship.

Kayak diving does not require you to be a serious athlete, but it does necessitate transporting yourself under your own power. You should be fit enough to make the dive plus the trip to and from your dive site without undue fatigue.

The marriage of scuba diving and kayaking was made possible by the production of the open deck, polyethylene kayak. The open deck design more closely resembles a sea kayak than a whitewater model. This unique design allows easy deep water exit and re-entry, is extremely stable, and provides storage for scuba gear. If used for diving, the boat must be self-bailing, incorporating some type of drainage holes in the cockpit area

to minimize the collection of water. They don't keep you completely dry, but neither does scuba.

To insure the safe utilization of the kayak for diving, the kayak diving specialty course was developed. Included is instruction in basic paddling and boat-handling techniques, boating "rules of the road," seamanship, handling scuba gear in the PDC, securing the PDC during a dive (anchor-



Round 'em up, move 'em out. Kayak diving is gaining popularity with divers who want to hit sites that can't be reached by swimming.

BY JEAN HENRY

ing, tying off, and tethering), environmental challenges, basic and self rescue, and environmental awareness. The course utilizes classroom, confined water, and open water training sessions, usually conducted over three to four days. Some locations offer a short kayak diving resort course which provides a guided experience but does not lead to certification. All of the major certification agencies have now approved the kayak diving course.

The specialty course prepares the kayak diver for standard conditions and environments. The trained diver then refines paddling and gear-handling skills as a springboard to utilizing the kayak for more advanced kayak diving activities such as surface supplied air, deep, current, solo, rescue, spear fishing, marine research, etc.

Clark Ross, director of the American WaterSports Association, the originator of kayak diving training, says he has witnessed tremendous growth in kayak diving since he began actively advocating for the sport six years ago. "At first, people laughed and wondered how I was going to get the kayak under water. Now, a growing number of resort destinations and dive shops offer kayak diving or use open deck kayaks for open water support. Some live-aboards even carry the kayaks with them," reports Ross. However, its true allure is that kayak diving can be done virtually anywhere. The PDC is light, durable, and easily handled by one person. It opens doors to diving where little or none existed before-lakes, rivers, remote bays, rugged coastlines. Says Ross, "We are no longer restricted to places where the commercial dive boats will take us."

Technology and simplicity, challenge and repose, above and below; at either end of the continuum, kayak diving has something to offer. All you need supply for the experience of a lifetime is the spirit of exploration and respect for the aquatic world.

For more information on kayak diving, contact the American WaterSports Association, 2313 Shady Willow Ct., Bedford, TX 76021, (817) 354-8996.

Jean Henry is a reformed whitewater kayaker. She is an instructor trainer in scuba, open deck kayaking and kayak diving. She developed the first curriculum for kayak diving, including specialty through instructor training.

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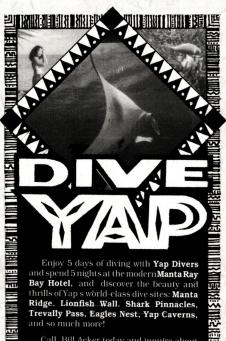
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# Club Scuba Times Makes Its Debut

his year, Scuba Times Magazine is celebrating our 15th Anniversary. To make it an even more special year, we've giving our readers a chance to join the club. What club, you might ask? Club Scuba Times.

Membership into Club Scuba Times is for serious divers who have a desire to look deeper into the diving world. A small membership fee entitles club members to hundreds of dollars of benefits that are unavailable anywhere else.

As an exclusive member of Club Scuba Times you'll get a oneyear subscription to the magazine right off the bat. In addition, we'll send you an attractive 100 percent cotton, Club Scuba Times T-shirt, two Scuba Times hammerhead shark stickers and your personalized, laminated membership card. You'll also get a 1994 Divesuit Calendar, which was shot in Costa Rica during our divesuit photo shoot.

In addition to the valuable Scuba Times gifts, you'll begin receiving priority data for up-coming Scuba Times Expeditions. These specialty expeditions are organized exclusively by Scuba Times. They are not available anywhere else. For example, our 1994 Expeditions will visit the sperm whales of the Azore Islands, the great white sharks of South Africa and the fur seals under the Canadian ice cap. These exciting, exploratory expeditions will be the subject of future articles in the magazine. You have the chance to be a part of these expeditions and have your photographs published in STM.

To assist you in general dive travel, Club Scuba Times members will receive priority discounts on international travel as well as discounts on dive insurance. If you take one trip per year, your savings will cover your membership fee and dive insurance. You'll also receive insider information and travel tips

to the Caribbean and the rest of the world.

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#### Nitrox in Monterey

Aquarius Dive Shop of Monterey. California, is now dispensing nitrox up to 40% oxygen at the Del Monte facility. Currently, Aquarius has NOAA Nitrox I (32% oxygen), NOAA Nitrox II (36% oxygen), and 40% oxygen blends available.

The Monterey Bay National Marine Sanctuary is an average of 60 feet deep, and the water temperature averages 52°F, making Monterey ideal for nitrox divers

Aquarius is a qualified ANDI (American Nitrox Divers International) training and technical facility. Both full user and limited user courses are being scheduled. For more information call (408) 375-1933.

#### New Jersey Up Line Reel

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Divers carry the reel on their tanks with a bungie cord. When needed the diver sends up the loose end with a small lift bag while paying the line out. Once the lift bag hits the surface the diver ties the up line to the wreck, cuts off the reel and ascends up the newly created mooring line. Safety stops can easily be made on the line too. And, since the hemp line is biodegradable and quickly deteriorates no harm is caused to the environment. For more information call (516) 868-2658.

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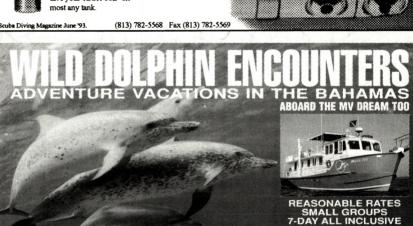
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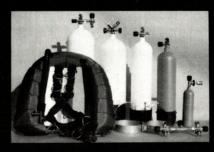


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#### SCUBAPRO MK15 REGU-LATOR, NOT A RECALL

In our January/February 1994 issue, we incorrectly reported a recall of the ScubaPro MK15 regulator. The announcement was actually an "Important Safety Notice." It stated the following, "If you own a MK15 Regulator, do not use it until it has been repaired. This involves all MK15 Regulators shipped from ScubaPro until 9/1/93. Discontinue use and bring to a ScubaPro Dealer . . . where it will be repaired at no cost."

MK15 owners should still follow the article's advice. However, the announcement was not technically a recall, it was a safety notice.

#### OOPS, OUCH!

Everyday, we learn how astute our readers really are. And when we make an error you let us know. Boy, do you ever. We apologize for the incorrect Costa Rica Dive Info Chart in our January/February 1994 issue. The data listed was actually a duplicate of the Indonesian Info Chart in the same issue. No, Costa Rica's currency is not rupiahs and the language is not Malay. Following is the correct information for those of you who missed it.

## DIVE TRAVEL INFO

Location: Central America, between

Nicaragua and Panama

Body of water: Pacific and Caribbean

Size: 185 mi. X 300 mi. Population: 3 million

Languages: Spanish, English

Entry documents required: U.S. passport

Electrical current: 110 volts

Highest elevation: 12,500 ft (Mt Chirripó) Airlines Servicing: Continental, United, American, Aero Costa Rica and LACSA

#### COSTS

Exchange rate: 130-140 colones = \$1 U.S.

Cost of two-tank dive day: \$60 Departure tax: About \$8

Avg round trip flight from:

New York: \$535 LA: \$480 Miami: \$330

#### DIVING

Winter Summer

Water temp: 70°F 82°F

Avg U/W vis: Coastal 30-70 feet yr round

Cocos Island 80 ft yr round

Air temp: 80s°F year round

E-6 Film Processing: Yes

Nearest recompression chamber: Panama

Top 3 dive sites: 1. Cocos Island

2. Caños Island

3. Bat Islands

Costa Rica Tourism: (011) 506-238-423

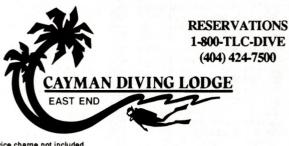


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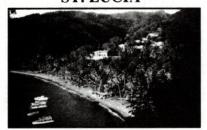
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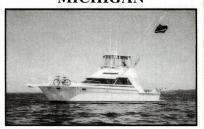


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# IS SPORT DIVING A SPORT?

nether diving qualifies as a sport or not depends, of course, on what definition of "sport" you use. I generally think of sports as activities which involve competition and physical exertion, while serving no useful purpose (as opposed to "work") other than exercise. By these criteria, good diving is the anithesis of "sport," although, like sport it can be good recreation. I maintain that, regardless of what the training agencies tell you, if you're burning more calories diving than you do strolling through the woods, you're not doing it right. Breathing hard, a simple indicator of good exercise, can be deadly underwater. Moving fast underwater is moving inefficiently, and scares away most of the animals that make the reef a more interesting place than your living room. Most sorts of competition that have been applied to diving, from spearfishing and bug-grabbing contests, to the eternal quest to see who can dive the deepest or stay down the longest, are either dangerous to the contestants or to the native inhabitants of that alien realm which has been appropriated as a playing field for our amusement.

Let's face it, with the exception of a few marinas and other impacted zones, the entire ocean is a wilderness area, not a sports arena. If you want to play sports, such as underwater hockey, you should be in a pool, where you won't be wrecking the reef. It's worth noting that true

underwater sports of this sort do not involve the use of scuba equipment, due to the obvious limitations to breathing and movement.

So, if diving isn't a sport, what is it? Cinematographer Howard Hall came up with the most concise definition I've heard: it's transportation. Scuba diving is the technology which allows you to enter the most intriguing and least known untamed wilderness on our planet. People who become obsessed with the technology are missing the point. When you go hiking in Yellowstone, the important thing is not the backpack. The backpack merely carries the supplies that enable you to get out where the bears and bison are. And if you're hiking just to build up your leg muscles, let me suggest "Thighmaster."

To our shame, our marketing efforts in the dive industry have convinced a lot of nice people who have no affinity with the ocean or its inhabitants that diving is a "fun sport," and they should be doing it to enjoy themselves on their vacations. Once they put on their tanks and masks they expect to be having REDEFINE diving.

not as a SPORT, but as a means of

**ENIOYING** fun, and when they go undernature water and don't find a program of entertainment, they attempt to provide it themselves by chasing the animals around. How do you suppose the rangers in our national parks would respond to a bunch of bozos trying to ride the bison, vank the elks' tails, and feed the grizzlies? Yet, this is exactly the behavior of a typical group of "sport divers" when they encounter sea turtle, mantas, whale sharks, stingrays, and other wild animals in our underwater parks. It's not their fault. It's the fault of the dive magazines which are still

publishing photographs depicting happy divers grabbing struggling sea turtles, and the training agencies and dive shops which promote diving as the yuppie sport of the 90s without adequately stressing the diver's responsibility towards the environment throughout all phases of training.

We need to redefine diving, not as a

sport, but as a means of enjoying nature. The emphasis of training should be on the aquatic environment and the fascinating array of life it supports. Diving techniques (including the much neglected and maligned art of snorkeling) should be taught in relation to their applicability towards observing plants and animals in their natural state (i.e. neither fleeing from the diver nor flocking towards his can of cheese whiz), with the primary goal being minimization of stress to the animals and harm to the environment.

I'm not saying that no one should ever use bait to attract a fish for a photo, or that fish should never be killed for food. Nor am I saying that we should all hover 20 feet above the reef all the time so that we never touch it. I'm saying we should stop saying that "diving is fun." It only takes people about three dives (just long enough to get over the fear) to realise that it's not any fun if you don't have anything to do and you don't know what's going on down there. Let's admit that diving is just doing the same thing we do all the time: breathing. Doing it underwater is a bit novel for most people, but breathing is still not very exciting, especially when it involves lugging heavy equipment about. Our motto should be "Watching fish is fun," or "Sea slugs are beautiful," coupled perhaps with the selling point

that "Diving takes you there!"
Every dive class and dive tour should have an orientation to the local marine environment and the opportunity for guided exploration with a trained naturalist. Marine ecology should be required subject matter in every dive

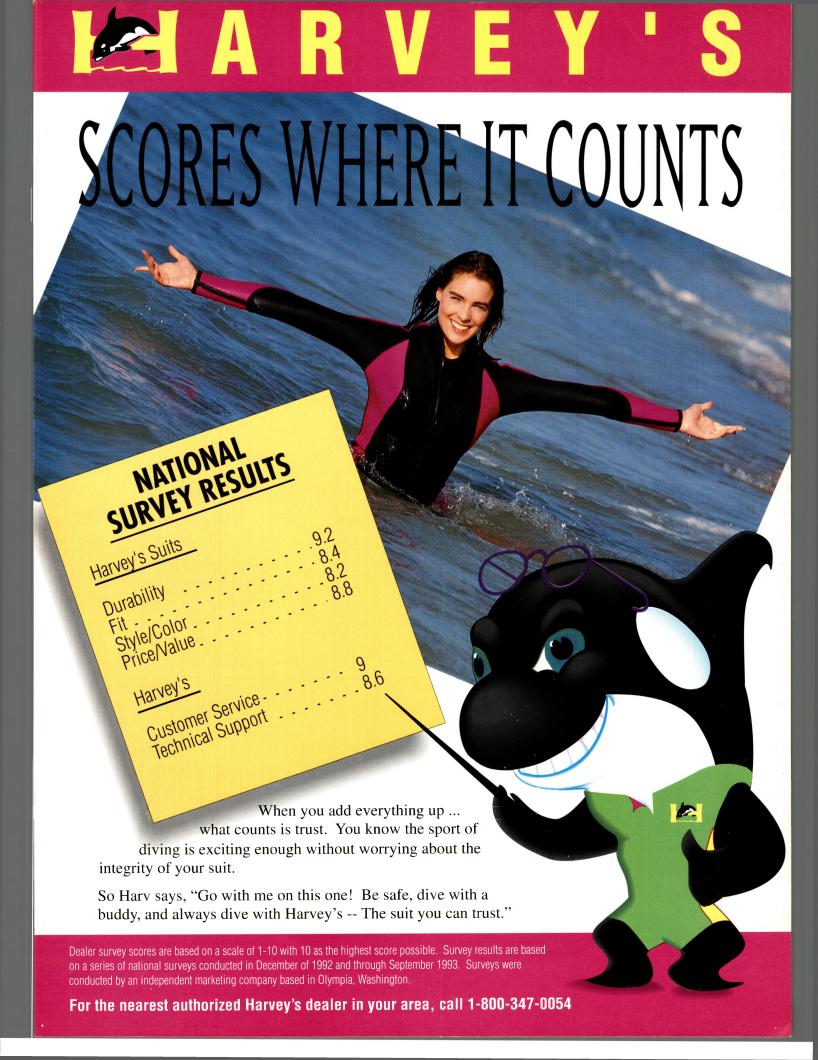
instructor curriculum.

I applaud organizations like REEF and the Cayman Islands Marine Lab that have combined "sport diving" with "ecodiving." And it's heartening to see that some live-aboards are offering "ecodiving" courses, too. But such ventures cannot prosper without customers. It's up to each dive instructor to create the demand for this sort of experience be communicating to the students the attitude that it's the chance to observe alien lifeforms that makes it all worthwhile. Otherwise we'll always be looking for the elusive "virgin" diving spot because

all of the established sites have been "ruined" by divers who grabbed everything that came close, and chased all the interesting animals away. Finally, let's get some exercise

bikes on those dive boats. We're going to need another way to burn fat once we quit swimming

and start watching what the fish are doing! —Doug Perrine



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